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GOVERNMENT OF NORTHERN IRELAND
MINISTRY OF AGRICULTURE

MONTHLY REPORT

JANUARY, 1939.

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GOVERNMENT OF NORTHERN IRELAND
MINISTRY OF AGRICULTURE

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MINISTRY OF AGRICULTURE

MONTHLY REPORT

JANUARY, 1939

A most difficult year for farming has ended, and farmers had good reason to bid it farewell with some feeling of relief, but alas, with such legacies as waterlogged and flooded land, unfinished harvest work, and arrears of seasonal field work to face 1939 with, there was no great enthusiasm shown in farming circles at the New Year. Unfortunately, too, the weather since the commencement of this year has, to say the least of it, shown no improvement and, with the sudden extremes of temperatures of late, it has endangered potato and root crops, as well as becoming more trying for live stock with a consequent heavy drain on foodstuffs. The general desire for seasonal weather expressed some time ago has indeed been gratified recently, and with dire results. However at this time of change we can look forward with some hope of events taking a turn for the better both in regard to weather and trade conditions to spur on further effort in rural districts. Already there are welcome signs of recovery in the demand for potatoes and livestock, and doubtless the rain clouds will disappear in good time to increase the slight feeling of optimism thus engendered.

At this season of the year poultry keepers have to include a small proportion of cod-liver oil in their rations for young chicks. In addition to the note of warning on the purchase of cod-liver oils, which appeared in the December issue, the importance of this subject is again stressed in the special notes on page 533. Poultry keepers and others are strongly advised to study these notes before purchasing supplies.

AGRICULTURAL CONDITIONS.

AGRICULTURAL CONDITIONS AT 1st JANUARY, 1939.

The continuance of very wet and stormy weather into the third week of December caused ground conditions to become worse, and heavy flooding was occasioned by swollen streams and rivers in low lying parts of the country. Throughout this period temperatures remained high for the time of the year, and grass lands continued to reflect the unusually mild winter to date. A rapid change, however, took place in the week before Christmas, and more seasonal conditions, including falls of snow and heavy frost, continued until the last few days of the month when, following a rapid thaw, former conditions returned although temperatures did not recover to the previous high levels.

Field work was further delayed by unfavourable weather and soil conditions throughout December. While the ploughing of some lea land was done in a few dry fields in early districts, and very belated outstanding harvest work, such as the carting of grain crops from the fields and the digging of potatoes, progressed to some extent elsewhere, seasonal work generally fell further behind and is now estimated to be from one to three months in arrear.

Progress with the threshing of the corn crops varied according to district, and the same remark applies to the scutching of the flax crop, which was commenced on a general scale rather later than usual. The results of these operations appear to differ to a marked extent throughout the country, and reflect the prolonged and unsatisfactory harvest.

With a fair proportion of the potato crop in the ground, and the corn crops still in huts in some districts during the further heavy rains and the severe frosts of last month, it seems likely that even more serious damage than was anticipated earlier will have been caused to these crops, and particularly to potatoes by the frosts. Pastures which had remained in a comparatively good state for the time of the year during the damp but mild weather, also suffered heavy damage from the frosts, but they recovered somewhat after the thaw and they are still providing some keep for live stock. Advantage was taken of the frozen state of the ground to cart farmyard manure and to make applications of lime and phosphatic manures to the land, but this work also remains very backward on account of adverse weather, and much less lime and phosphatic manures have, in consequence, been applied to the land this season than at the corresponding date a year ago. In this connection it may be mentioned that since arable land will doubtless benefit from the frosts and subsequent applications of lime and phosphatic manures will have greater effect than normally, farmers should take advantage of the first opportunity to apply dressings of these materials.

The general position in regard to supplies of food stuffs for live stock remains satisfactory. Supplies of home grown grain and fodder of fair to good quality are plentiful for normal seasonal requirements, but stocks of roots are likely to have been considerably reduced by frost damage, whilst green crops, such as cabbage and marrow stem kale, have nearly all been used up. Potatoes, however, being plentiful and cheap, were used to some extent for stock feeding on those farms where digging was practicable. Purchased feeding stuffs were in good supply, but prices, especially for maize and maize products, tended firmer during the month.

Following the very wet weather of the past three months, the very sharp frosts of late December have been rather trying on cattle, especially outlying animals, and sheep also suffered to some extent. Nevertheless, the general position of the herds and flocks is satisfactory, and there have been no abnormal outbreaks of disease, although hoose and common colds are fairly prevalent among cattle, and liver fluke disease also attacked a few cattle as well as some sheep grazing on low-lying and badly drained pastures. Foot rot troubles among the flocks continued on a comparatively small scale. While the snow did not remain long enough to cause much anxiety to sheep owners it, nevertheless, caused flock owners to adopt hand-feeding, which otherwise would not have been necessary.

Trade in live stock also suffered interruptions by weather conditions, particularly during the frosty spell when the roads became dangerous for traffic, and supplies at country fairs were in consequence curtailed. Good forward store cattle remained in firm request, and there was a general improvement in the beef trade during the month, but dairy cattle declined in favour towards the close of the year and prices finished below previous high levels. For the comparatively small offerings of fat sheep and lambs trade moved on quiet lines until around Christmas when a strong enquiry saw a slight rise in prices for good animals.

THE CROPS.

Wheat.—With weather and soil conditions holding up work with the plough and otherwise rendering the sowing of seed impossible, no further progress was made with the sowing of winter wheat last month, and unless there is a general improvement in conditions soon the area under this crop will show a marked reduction on the year. It is understood that many farmers have the seed ready for sowing as soon as the ground is in a fit state for its reception, but unless it can be sown at an early date it would be unwise to risk sowing seed of winter varieties, as the crops may not ripen when sown too late.

Some further progress was made with the threshing of wheat last month, and this work is now almost completed. As will be seen from the return on

page 504 the production of grain in Northern Ireland last year is estimated to have increased slightly above the average for the previous ten years as a result both of the larger area sown and the slightly higher yield obtained.

Prices of feeding wheat continued at low levels of from £5 to £6 10s. 0d. per ton during December, whilst grain, sold at a few local markets, fetched from 5/6d. to 6/- per cwt., and on average was 2¼d. lower at 5/8½d. per cwt.

Oats.—Advantage was taken of the firmer ground conditions during the frosty period to cart in some of the crop where adverse weather conditions had held up this work since the beginning of October. In those districts, however, where the harvest is usually late, some crops of oats are still out in the fields in huts, and it is feared that the further damage and loss which these have suffered from the continuance of wet and generally inclement weather will have rendered them of little value.

Threshing operations proceeded on an increased scale during December, and good progress was made with this work; none the less a fairly large proportion of the crop still remains unthreshed. The quality of the grain and straw is stated to be very variable, and on average barely medium, but the yields are estimated to be above average, especially where the crop was well saved. The total production of oats in Northern Ireland in 1938 is estimated to show a marked increase on the year and to exceed the average for the previous ten years. This is due to the increased area under the crop, which in turn may have been due to some extent at least to the assurance of a reasonable price, given under the terms of the Oats and Barley Subsidy Scheme. Details of the acreage, production and average yields are given in the table on page 504. Supplies of oat straw for fodder will generally be plentiful for requirements despite the fact that a larger proportion than usual is of lower quality, and that some of it will be fit only for bedding.

The quantities of white oats marketed continued to show an increase during December, and the average price for the month of 5/7d. per cwt. recorded an advance of 3d. as compared with the November figure. Oat straw was also in larger supply, and 11d. per ton cheaper at 41/4d.

Barley.—Threshing work made good headway last month, and most of it has been completed. This crop did remarkably well in some districts, and very high yields of good quality grain were obtained on farms where it was saved in good condition. Elsewhere the position varied to some extent, and although the estimated average yield is well above that for last season it remained slightly below the average figure for the previous ten year period. The terms of the Oats and Barley Scheme also may have encouraged the increase in the area of this crop, but pig feeders are slowly, but surely, appreciating the value of barley, and of the fact that it can be produced cheaply on the farm; this has also contributed to the increase in the area under this

crop. In the returns of production, as given on page 504, it will be observed that the production of the grain has increased considerably, due to the larger area grown and to the higher yield obtained, as compared with the previous season. In view of the very large extent to which pig production is now carried on in Northern Ireland it is satisfactory to note that supplies of home-grown barley are likely to be more plentiful than usual this year.

Prices for barley, as for other grain crops, have ruled at low levels this season, but quotations for feeding barley showed some improvement during December, and ranged from £5 to £6 10s. 0d. per ton.

Flax.—The scutching of this crop, which was generally delayed until December proceeded slowly but steadily during the month, and the greater part of the crop has been scutched in most districts. The returns so far have been generally less satisfactory than for the previous season. Yields have varied to an appreciable extent, and are estimated to be slightly below average, whilst the quality of the fibre is stated to be below the usual standard. Pedigree strains are stated to have yielded quite well in some districts, and the quality of the scutched flax up to a good standard. It is understood that considerable losses have been experienced in scutching operations this year through the breaking of the flax straw at the butt ends.

Although prices have ruled slightly lower than for the previous season, it is considered that, having regard to the quality of this year's crop being somewhat lower generally than last year, the price position is little altered. Increased quantities of flax were marketed last month, and the average price improved by 1¾d. to 9/4¾d. per stone. Prices generally ranged from 7/- to 11/6d. per stone throughout December.

Potatoes.—The lifting of this crop continued to be retarded by unfavourable weather and ground conditions, and a fair amount of the work still remains to be done. With the rather mild temperatures ruling up to mid-December sprouting was fairly common in pits and in stores, especially in the case of tubers of the Arran Victory variety. Furthermore, with the crop dug in a wet state the general keeping qualities were endangered, and much concern is now felt for stocks which are showing signs of injury from the recent severe frosts. It is also to be feared that following fairly extensive damage from rotting and souring in pits situated in low lying land that had become heavily waterlogged, the frosts will have further seriously reduced the stocks of good ware potatoes. A large portion of the crop still in drills will, it is thought, become a total loss from the rains and the frosts. Already it is reported that in houses and in pits where the tubers were not adequately protected from the frosts heavy damage has been done.

Following the arrival of severe wintry weather, trade showed some improvement. Shipments of potatoes to Great Britain increased in volume during

December, but remained appreciably below those of last season, as may be seen from the following weekly returns :—

Week ended	*Tons*	*Week ended*	*Tons*
31-12-38 ..	1,328	1-12-37 ..	3,960
24-12-38 ..	1,331	25-12-37 ..	4,837
17-12-38 ..	2,395	18-12-37 ..	4,393
10-12-38 ..	2,114	11-12-37 ..	5,504
3-12-38 ..	2,066	4-12-37 ..	4,120

Prices appreciated during the month, and at the beginning of January ranged as follows :—

WARE.

Variety	*Bagged*	*Loose*
Up-to-Date ..	£2 10 0 to 3 0 0	£2 10 0
Arran Banner ..	2 10 0	2 0 0
Arran Victory ..	2 5 0 ,, 3 0 0	2 0 0 to 2 5 0
Kerr's Pink ..	2 15 0 ,, 3 0 0	2 0 0 ,, 2 15 0
Majestic ..	2 10 0 ,, 2 17 6	——

SEED.

	Bagged	*Loose*
Up-to-Date ..	£3 10 0 to 4 0 0	£3 5 0
Majestic ..	3 10 0	——

At local markets supplies were on a par with the previous month and prices generally tended upwards. The average price for all classes of the main crop marketed in December improved on the month by 2¾d. to 2/8¼d. per cwt., while that for Kerr's Pink was ½d. dearer at 2/5¾d. per cwt. The principal variety, Arran Victory, however, eased slightly by ¼d. to 2/4½d. per cwt.

MANGELS.—The roots are generally keeping well in storage, and on the whole appear to be in a satisfactory condition, although some damage has been caused by the severe frosts where adequate covering was not provided.

TURNIPS.—This crop has suffered considerably from frost; crown rot, which was particularly prevalent in heavy soil areas after the frosts will, it is feared, seriously reduce yields. Roots which had been lifted before the frost are keeping well, and increasing quantities are being fed to stock.

CABBAGE AND KALE.—Farmers are growing more of these crops, and there is a tendency to feed them in place of turnips, although, in some districts, swedes are still preferred. Marrow stem kale is increasing in popularity for dairy stock. A large proportion of the plants had been fed previous to the frosts, but the remainder suffered, the frosts being particularly severe on cabbage. On the whole the yield and quality have been very satisfactory.

HAY.—Nearly all the seed hay has now been threshed. Yields and quality generally have been only poor to medium. Prices obtained for grass seed during December were generally maintained at the previous high levels prevailing this season. The steady supplies of Italian ryegrass seed were on

average 2½d. per cwt. dearer at 22/10¾d., while further decreased offerings of perennial cheapened slightly by 3¾d. to 20/2¼d. per cwt. Much smaller quantities of mixed seed improved in price by 1/1½d. to 14/10d. per cwt.

Supplies of hay marketed continued to increase during the month, but the quantities remained below those for the corresponding month a year ago. The average price for this season's upland hay advanced by 11d. on the month to 59/6d. per ton, while meadow hay again cheapened, and the average quotation was 1/1d. lower at 40/7d. per ton. Small supplies of old crop upland hay at Belfast remained unchanged in price at 73/- per ton.

LIVE STOCK.

Cattle.—Stores remained in normal health and condition last month, but there were the usual outbreaks of hoose, and influenza was fairly common.

Offerings at fairs were variable and generally on the small side. The severe weather and the slippery state of the roads at the end of the month resulted in very small supplies being forward. Demand and prices were well maintained until the close of the month when an easier tone was noticeable.

The health and condition of dairy cattle remained satisfactory. Cases of sterility and abortion continued to be reported from a few districts. Some trouble has been experienced in keeping milk yields up to normal, the severe weather being largely responsible.

Supplies at fairs were, as a rule, small and, with quality rather below average, prices were inclined to ease below the levels of the previous month, particularly towards the end of December.

Sheep.—Despite the extremely inclement weather conditions the flocks are in a normal state of health. Foot rot has been surprisingly rare considering the wet season, and preventive measures appear to be keeping liver fluke disease well in check.

Small numbers of sheep and lambs were a fairly good trade during the month and prices fluctuated slightly around previous levels.

Pigs.—Young pigs continued to be offered for sale in normal numbers for the season and, while the demand remained fairly steady, prices where altered were easier. Breeding sows remained in fairly small supply, and encountered a moderate enquiry at unchanged rates of from £5 to £11 per head according to type and quality. Plentiful supplies of dead pigs were rather slow to clear, and with curers seemingly restricting their requirements, more pigs were consequently sold alive to the Pigs Marketing Board.

Weekly returns of (1) shipments of live pigs to Great Britain, and (2) purchasers of dead and live pigs for curing in Northern Ireland last month are compared hereunder, with corresponding details for 1937 in brackets.

Week ended	(1) Shipments to Great Britain		(2) Bought dead and alive for curing in Northern Ireland				Total	
			Dead		Alive			
10/12/38	2,310	(4,262)	9,605	(9,048)	5,964	(4,386)	17,879	(17,696)
17/12/38	2,076	(3,615)	9,421	(9,166)	6,191	(3,771)	17,688	(16,552)
24/12/38	1,749	(2,435)	6,177	(6,803)	5,718	(2,599)	13,644	(11,837)
31/12/38	954	(2,198)	4,589	(6,707)	3,491	(2,090)	9,034	(10,995)
52 weeks ended 31/12/38	103,323	(139,176)	457,506	(459,061)	195,950	(141,486)	756,779	(739,723)

Horses.—Demand for farm horses last month remained on the dull side. Price movements were slight, and good farm horses continued to change hands at from £25 to £40 per head, while a few better class animals made up to £45. Older horses generally made from £15 to £30, and unbroken colts of from 2 to 3 years' old were a slow trade at similar rates, while foals were selling at from £8 to £16 per head according to quality.

Milk.—The weather continued to have an adverse effect on milk yields. Taken all over supplies were rather below the usual seasonal level, and some producers experienced difficulty in fulfilling their contracts with distributors. Prices paid by creameries for milk delivered were slightly firmer and ranged from 4¾d. to 6d. per gallon, the separated milk being returned to the farmer. The rate of equalisation payment, in accordance with the Milk and Milk Products Acts (Northern Ireland), 1934 to 1938, for milk produced in Northern Ireland and delivered to the creameries for manufacturing purposes has been determined at 0.85d. per gallon for the month of November, 1938.

It should be noted that under the regulations creameries are required to distribute the equalisation payment in accordance with butter-fat content of the milk received from each supplier.

THE COST OF LIVING INDEX FIGURE.

The cost of maintaining unchanged the pre-War standard of living of working-class families at December 1st was approximately 56 per cent. over the level of July, 1914, the same as at November 1st, but 4 per cent. less than a year ago.

At December 1st the index of retail prices of food in Great Britain and Northern Ireland, as ascertained by the Ministry of Labour, was 39 per cent. above that of July, 1914, as compared with 40 per cent. the previous month, and 46 per cent. at December 1st, 1937. During the period under review average prices of eggs, bacon, butter and flour showed a reduction.

THE MARKETS DURING DECEMBER.

There were larger supplies of the principal home-grown vegetables marketed last month as compared with November and, for the majority, monthly average prices were higher than in November, chiefly as the result of the rises which occurred near the holidays.

The average price of cabbage was a farthing firmer at 1/3d. per dozen; cauliflowers advanced by 1/3d. to 2/9d. per dozen, leeks by 1½d. to 5½d. per bunch; parsley by 3d. to 7d. per bunch, and parsnips by 6½d. to 5/6½d. per cwt.; savoys, carrots and garden turnips, however, cheapened on the month; savoys by 1d. to 1/1d. per dozen, carrots by 8¼d. to 7/5d. per cwt., and garden turnips by 2d. to 1/3d. per cwt.

In the provision section supplies of farmers' print and lump butter were larger than in November, and while the average price for the former was unchanged on the month at 1/2¾d. per pound, lump butter was a farthing dearer at 1/1¼d. per pound. Supplies of hen and duck eggs were more plentiful in December than in the preceding month, and prices, as fixed by the Ministry from week to week for hen eggs indicated a slightly easier tendency, while those for duck eggs were unaltered during the month.

In the poultry markets the prices of hens, chickens and ducks recorded heavy seasonal increases in December, but compared with the corresponding month last year chickens and ducks were rather less numerous, although hens were in larger supply. Prices were dearer than in November last, but, generally speaking, there were no appreciable differences compared with the prices ruling for the last month of 1937. Turkeys were generally cheaper than a year ago, the average price per lb. live weight being estimated at 10¾d. as compared with 11¾d. for December, 1937. Geese, also, were cheaper and averaged 5½d. per lb. last month as against 6d. per lb. for the corresponding month a year ago.

Reduced supplies of unwashed wool were marketed during the month, and long wool was a farthing dearer at 7d. per pound, while mountain was unchanged in price at 6d. per pound.

MARKETING OF EGGS ACTS (N.I.) 1924—1937.

The following table shows the prices fixed by the Ministry, and payable by licensed wholesale dealers, for eggs purchased from producers during the weeks specified, as compared with the prices fixed for the corresponding weeks of 1937.

Week ended	1938				1937			
	Hen eggs per lb.*		Duck eggs per dozen.*		Hen eggs per lb.		Duck eggs per dozen.	
	s.	d.	s.	d.	s.	d.	s.	d.
December 3rd ..	1	1	1	5	1	4¼	1	8
,, 10th ..	0	11	1	5	1	3½	1	8
,, 17th ..	0	11	1	5	1	2	1	8
,, 24th ..	1	0	1	5	1	2	1	8
,, 31st ..	0	11¼	1	5	1	0	1	8

*When hen eggs are delivered by the producer to the packing store of a licensed wholesale dealer of Class A an additional ½d. per lb. is payable; in the case of duck eggs an additional ¾d. is payable for each complete dozen so delivered.

Payment on a quality basis came into operation during the week ended 5th March, 1938.

The following were the standard deductions :—

Hen eggs : "Seconds" and soiled eggs ½d. per egg, rejects 1½d. per egg for the week ended 3rd December, during the weeks ended 10th and 17th December, 1¼d. per egg, afterwards 1½d. per egg.

Duck eggs : Rejects, 1½d. per egg.

EXTENT AND PRODUCE OF GRAIN CROPS, NORTHERN IRELAND, 1938.

Below are tabulated the estimated extent, total production, and average yield of the three principal grain crops in the year 1938, with comparative figures for the year 1937, and the average for the ten year period 1928 to 1937. The acreage under all corn crops is higher than in 1937. The area under wheat shows an increase of 1,169 acres, or 26.9 per cent., oats an increase of 39,560 acres or 15.4 per cent., and barley an increase of 656 acres or 23.6 per cent. The average yields are also higher than in 1937, wheat increasing by 0.5 cwt., oats 0.6 cwt., and barley 1.2 cwt. per statute acre. The average estimated yield of wheat and oats shows an increase, and barley a decrease as compared with the average for the decennial period.

	Wheat			Oats		Barley			
	Extent	Estimated total production	Average Yield per Statute acre	Extent	Estimated total production	Average Yield per Statute acre	Extent	Estimated total production	Average Yield per Statute acre
	Acres	Cwt.	Cwt.	Acres.	Cwt.	Cwt.	Acres.	Cwt.	Cwt.
1938	5,521	114,274	20.7	296,529	5,794,087	19.5	3,430	65,710	19.2
1937	4,352	88,117	20.2	256,969	4,855,159	18.9	2,774	50,018	18.0
Average for period 1928 to 1937	5,443	113,172	20.5	286,193	5,308,157	18.6	2,123	41,691	19.6

NOTE ON FEEDING STUFF PRICES IN 1938.

By far the largest single item of expenditure in the Northern Ireland farmer's bill of costs is feeding stuffs. In 1925, when industrial and agricultural censuses of production coincided, it was possible to make the following estimates of the total amount spent by farmers on various agricultural requisites:

Feeding Stuffs ..	£3,100,000
Fertilisers ..	400,000
Seeds	275,000
Total	£3,775,000

It will be seen that feeding stuffs accounted in that year for 82 per cent. of the total expenditure on these farm requisites. Ten years afterwards, in 1935, it appeared that the position had not changed considerably. Though larger amounts of feeding stuffs were being imported in that year, prices of feeding stuffs had fallen considerably, and it is estimated that approximately £2,900,000 was spent on this item. It is clear, therefore, that any change in the price of feeding stuffs is of the utmost importance to farmers in Northern Ireland.

Out of the total expenditure on feeding stuffs maize meal accounts for approximately 59 per cent. In 1935 the total amount spent by farmers in the purchase of maize meal is estimated at approximately £1,700,000; slightly more, in fact, than the estimated total labour bill on farms in Northern Ireland. The following table shows the price of maize meal in the years 1936, 1937 and 1938:—

Month	1936		1937		1938	
	s.	d.	s.	d.	s.	d.
January	5	3	7	2	8	5
February	5	2	7	3½	8	9
March	5	1½	7	3	8	3
April	5	4½	7	8	8	0
May	5	5	7	10	8	0
June	5	6	7	10	7	10
July	5	7½	7	7	7	9
August	6	4¾	7	9	7	8
September	7	1¾	7	9	7	5
October	6	11½	7	10	7	8
November	6	10¼	8	0	7	4
December	6	9	8	2	7	0
Average	5	11½	7	8¼	7	10

As a result of serious drought in the United States, and short crops elsewhere, prices began to rise about the middle of 1936. Maize meal in the first half of 1936 was selling at an average of approximately 5/4d. per cwt., but the price had risen to 7/1¾d. in September of that year, and continued to rise throughout 1937. In the first quarter of 1938 the price of maize meal averaged 8/5¾d.; it began to fall last March, and in the last quarter of the year it averaged 7/4d. as compared with 8/- in the last quarter of the previous year. The price in December, 1938, was only 3d. above the price in December two years before.

There has thus been a substantial reduction in the price of maize meal in recent months, and while it is impossible to say whether this trend will continue, it seems likely that feeding stuffs prices generally will remain appreciably below the levels of 1937 and the early part of 1938.

PREVENTING CANNIBALISM AMONGST CHICKENS.

Many poultry keepers at one time or another have experienced the condition known as cannibalism amongst chickens which were being reared artificially, especially in the case of flocks which were kept entirely indoors during the first weeks of life. Cannibalism is a vicious habit which the birds develop of picking the toes, vent, feathers, comb and other parts of the bodies of their flock mates. It is a habit which appears suddenly, spreads rapidly amongst the members of a flock, and is difficult to suppress.

Various suggestions for dealing with outbreaks of cannibalism have been made from time to time. These include the immediate removal of the obvious culprits from the flock; the fitting of red-coloured glass in the windows of the brooder house, and the keeping of a lamp, having a red-coloured globe, lighted in the house so as to dim the glare of the sun and make the chickens appear a red colour; providing supplies of raw liver for the birds to pick at, as well as suspending greens in the house to encourage the birds to work and so give them a counter attraction; reducing the heat in brooder houses and increasing the ventilation; reducing the size of the flock and providing increased eating and drinking space. In addition, various substances for smearing on the birds, to make them distasteful to their fellows and to heal the wounds already inflicted, have been advocated, and, in extreme cases, trimming the beaks has been practised.

While some of these measures may prove helpful in keeping outbreaks under control, their employment is not always found to be a satisfactory deterrent, leaving cannibalism a trouble still to be feared. In view of the difficulty of coping satisfactorily with outbreaks of the vice, the prevention of its appearance is of great practical importance, and a simple preventive which could be readily adopted would be a boon to the chicken rearer.

In recent years poultry keepers in Washington, U.S.A. believed that the feeding of a high proportion of maize meal increased the incidence of prolapsus of the oviduct in pullets, and this belief was corroborated by the results of a survey of flocks undertaken by an enquiry agent. It was further assumed by many of these poultry keepers that prolapsus was the forerunner of vent picking. In an endeavour to determine whether or not the incidence of prolapsus of the oviduct was really increased by feeding a mash containing a high proportion of maize meal, Miller and Bearse, of the Western Washington Experiment Station, Puyallup, U.S.A., carried out several experiments in which maize meal, ground wheat, ground oats, ground barley and a mixture of the first three comprised the basal part of the rations fed to each of five respective groups of birds. The results of these experiments were published in Poultry Science, Vol. XVI. No. 5, of September, 1937, and are of particular interest and practical importance.

In all four experiments carried out during four years with a total of 4,144 White Leghorn chicks, it was found that in every case where the ration contained a high proportion of maize meal the chickens developed severe cannibalistic habits during the later part of the growing period. This started with feather picking, and severe mortality from cannibalism continued during the first laying season. It was found that the high content of maize meal, and not prolapsus, was the predisposing cause of cannibalism.

On the other hand, and in marked contrast with the behaviour of the maize-fed birds, those fed on the oat ration showed but little evidence of cannibalism at any period of the experiments, while the birds fed on the rations containing ground wheat and ground barley showed cannibalistic tendencies which were intermediate between those exhibited by the birds fed on the maize ration and those fed on the oats ration. Growth and feathering were also satisfactory in the case of the birds fed on the oats ration.

The following is the writers' summary of the results of these experiments :—

"Oats fed as the sole cereal in a ration for growing and laying pullets consistently and significantly reduced cannibalism below that experienced on rations containing corn (maize meal) as the sole cereal. The four trials were conducted in four different years with different lots of feed each year. The growth value of the grain, as determined at eight weeks, showed oats first in every comparison, followed by maize, wheat and barley, respectively. The body weight at first egg was in the same order, although the maize-fed birds were heaviest at 24 weeks of age."

In a further paper published recently (Poultry Science, Vol. XVII., No. 6, November, 1938), these same workers have reported their findings from an experiment designed to determine which part of the oat grain carries the cannibalism-preventing property. In addition, the experiment sought to determine whether or not wood fibre in the form of spruce dust, or manganese sulphate would prevent cannibalism.

The wood fibre was used because oat hulls, which contain a large proportion of fibre, were added to one ration, to see if they were the part of the oat grain which had the property of preventing cannibalism, and it was necessary to compare the hulls with a source of fibre which was "not complicated with the same possible vitamins, minerals, or other nutrient factors" contained in the oat hulls, so as to ascertain if it were these factors, or the fibre as such, which carried the desirable property.

Manganese sulphate was added to another ration because oats contain substantially larger amounts of manganese than maize, and it was necessary to determine if it was the manganese or the oats which was important.

Using the information supplied by the first four experiments, namely, that a ration containing a high proportion of maize meal induced cannibalism, such a ration was used in this experiment as the standard by which to judge the cannibalism preventing properties of the other experimental rations. This standard ration contained 81 per cent. of maize meal, and one of the other rations had the maize meal replaced by an equivalent proportion of ground oats. The ration containing the oat hulls had 50 per cent. of maize meal and 30 per cent. of oat hulls, that containing the sawdust had 64 per cent. maize meal and 15 per cent. sawdust, while the ration containing the manganese sulphate had 81 per cent. of maize meal and 0.03 per cent. of manganese sulphate. A further ration had approximately 46 per cent. of maize meal, and 32 per cent. of oat mill feed. These proportions of oat hulls, oat mill feed and spruce sawdust supplied the same amount of fibre as was contained in the ground oats in the oats ration. All the rations were supplemented with the same sources of protein and mineral foods in quantities sufficient to supply a total of approximately 16 per cent. protein, 1.4 per cent. calcium, and 0.76 per cent. phosphorus in each ration.

Each ration was fed to duplicate groups of birds, each group consisting of 65 sexed White Leghorn pullets which were 14 days old when the experiment began.

There was little difference in growth between the various rations except that the manganese sulphate groups averaged the heaviest weight, and the oats and the sawdust groups the lightest, when the birds were 24 weeks of age. The lower comparative growth on the oats ration was not in accord with the results obtained from the previous four experiments with the same ration, and may have been due, in the opinion of the investigators, to the oats being ground so finely as to make the eating of the mash difficult.

The following are some of the observations made by the authors in their summary of the results of this experiment—Duplicate lots of White Leghorn pullets fed a maize-meal basal ration from the second to the thirty-second week of age developed cannibalistic habits.

When this ration was supplemented with oat hulls or with oat mill feed, or replaced by an oat basal ration, practically no cannibalism appeared in either of the duplicate groups fed on such rations. Supplements of oat ash, oat hull ash, or manganese sulphate, under the conditions of the experiment, were of no value in preventing cannibalistic habits.

The two lots fed the ration supplemented with spruce sawdust developed feather picking at about 14 weeks of age, but the vice had nearly disappeared at 32 weeks of age.

Since oat hulls were common to the three rations which most completely protected against cannibalism, and was the sole supplement in one of these rations, it is evident that oat hulls contain the cannibalism-preventing factor.

The work of these investigators, as reported in the two papers reviewed in this article, shows clearly that rations containing a high proportion of maize meal induce cannibalistic habits amongst chicks to which they are fed. On the other hand, rations containing a suitable proportion of ground oats, even in conjunction with maize meal, tend to prevent the vice from appearing. The use of oat hulls, or of oat mill feed, in rations for chickens is not to be recommended in general practice, but the experiment, by showing that these materials protected the birds against cannibalism, has directed attention to the great importance of using whole ground oats, and not oatmeal or other form of oats from which the hulls have been removed. Ordinary Sussex ground oats, being the whole oats ground finely, will provide the cannibalism-protecting property of the oats, as it contains all the hulls. These experiments direct special attention to the usefulness of ground oats in preventing cannibalistic tendencies amongst chickens; apart from its property of preventing cannibalism, ground oats is a very valuable food for chickens as well as for older birds.

MARKETING SCHEMES.

AGRICULTURAL MARKETING (PIG INDUSTRY) ACT (N.I.) 1934.

PIG PRICES FOR JANUARY, 1939.

The following announcement has been made by the Pig Industry Council for Northern Ireland.

Prices for Dead Pigs.

The prices per dead cwt. for dead pigs sold by producers to curers in Northern Ireland in January, 1939, are as follows:—

Weight Class. (Dead Weight)	Grade 1.	Grade 2.	Grade 3.	U.L. or U.F.	Partly Black Pigs.
c.1.0.21 to c.1.1.13	64/–	61/–	58/–	54/–	
c.1.1.14 to c.1.2.3	68/–	65/–	62/–	58/–	5/- below relevant Grade Price.
Weight Class. (dead Weight)	Grade A	Grade B	Grade C	U.L. or U.F.	
c.1.2.4 to c.1.2.14	68/–	65/–	62/–	59/–	
c.1.2.15 to c.1.3.14	68/–	65/–	62/–	59/–	
c.1.3.15 to c.2.0.0	65/–	62/–	59/–	56/–	
c.2.0.1 to c.2.0.14	59/–	56/–	53/–	50/–	

Pig Carcases c.1.0.0 to c.1.0.20—61/–

(*N.B. These prices show a decrease of 1/2 per cwt. on those fixed for December*, 1938)

Authorised cuts:—

(a) Broken ham (dry, shank and/or shell bone break)—5% of the gross value of the carcase.

(b) Broken ham (wet break)—12½% of the gross value of the carcase.

(c) Shoulder-stuck carcase—3/- per shoulder affected.

The gross value of a carcase is the product of the dead weight and the relevant grade or other price per cwt.

Where portion of a pig carcase is condemned on account of disease the existence of which could not reasonably have been known to the producer before despatch to the curer, the appropriate grade price (or fixed price if the carcase weighs not less than 1 cwt. 0 qr. 0 lb. and not more than 1 cwt. 0 qr. 20 lb.) shall apply. If the carcase is wholly condemned on account of disease

the existence of which could not reasonably have been known to the producer before despatch to the curer the relevant Grade 2 or Grade B price (or fixed price if the carcase weighs not less than 1 cwt. 0 qr. 0 lb. and not more than 1 cwt. 0 qr. 20 lb.) shall apply.

The foregoing prices do not apply in the case of (a) wholly black pigs, boars, rigs or stags, sucked sows, and pig carcases weighing under c.1.0.0 or over c.2.0.14, and (b) pigs visibly diagnosable as diseased before despatch by the producer and subsequently condemned; emaciated or screw pigs, smelling pig carcases with definite indications of putrefaction, and pig carcases badly abused or damaged before being handed over by the producer to the curer.

Prices for Wiltshire Pigs Sold on Direct Contract.

In the case of pigs sold alive under direct contract to Wiltshire curers the prices per dead cwt. payable for pigs delivered in respect of the month of January, 1939, are as follows:—

Weight Class (Dead Weight)	Grade 1.	Grade 2.	Grade 3.	U.L. or U.F.	Unsuitable.
c.1.0.21 to c.1.1.13	74/–	71/–	68/–	64/–	61/–
c.1.1.14 to c.1.2.3	74/–	71/–	68/–	64/–	61/–
	Grade A.	Grade B.	Grade C.	U.L. or U.F.	
c.1.2.4 to c.1.2.7	71/–	68/–	65/–	62/–	
c.1.0.0 to c.1.0.20	Suitable 63/–		Unsuitable 61/–		
Over c.1.2.7	On the same basis as pigs sold dead.				

(*N.B. These prices show a decrease of* 1/2 *per cwt. on those fixed for December,* 1938)

Prices for Live Pigs Sold to the Pigs Marketing Board (Northern Ireland).

The attention of Producers is directed to the fact that it is provided in the Council's Determination that the Board may reduce the price of pigs weighing not less than c.1.2.4, and not more than c.2.0.14 dead weight by a sum not exceeding 5/- per cwt. live weight. In exercise of this power, the Board have decided to impose a further cut of 1/6d. per live cwt. (the equivalent of 2/- per dead cwt.) in the price of pigs weighing not less than c.2.0.1 live weight as from the 1st January, 1939, till further notice. A similar cut of 1/6d. per live cwt. was imposed as from 1st August, 1938, and the reduction now made brings the total cut to 3/- per live cwt.

In the case of pigs sold alive to the Pigs Marketing Board during January, 1939, the prices per live cwt., according to grade, are therefore as follows :—

As and from 9th January, 1939, these prices apply only to pigs not resold to Wiltshire curers in Northern Ireland.

Live Weight.	Grade 1.	Grade 2.	Grade 3.		Unsuitable.
c.1.1.14 to c.1.2.13	47/3	47/3	47/3		45/9
c.1.2.14 to c.2.0.0	55/6	53/3	51/–	U.L. or U.F. 48/–	45/9
c.2.0.1 to c.2.1.14	48/–	45/9	43/6		41/3
c.2.1.15 to c.2.2.7	45/9	43/5	41/3		39/–
c.2.2.8 to c.2.2.21	41/3	39/–	36/9		34/6

These prices do not apply to live pigs under c.1.1.14 or over c.2.2.21, live pigs intended for breeding, live boars, live sucked sows, rigs or stags, injured or diseased pigs, live in-pig gilts, or live pigs sold (on contract registered with the Pig Industry Council) to curers in Northern Ireland. All other live pigs inside the weights c.1.2.0 to c.2.2.21 can be sold only to the Board.

As and from the 1st January, 1939, the Council, by an amendment to their Determination, have provided that the Board may deduct an amount at present not exceeding 4d. per pig to cover insurance in the case of pigs sold to the Board and resold to curers in Northern Ireland.

The Council have further determined that as and from 9th January, 1939, the dead weight classes and prices applying to pigs sold alive under direct contract also apply to pigs sold alive to the Board and resold to Wiltshire curers in Northern Ireland.

Authorised Deductions.

Every pig (dead or alive) sold to a curer or to the Pigs Marketing Board is subject to a levy at present amounting to 5/-

In addition to this amount, a deduction of 4d. per pig may be made in the case of sales to curers to cover insurance, so that the producer will not suffer financial loss if the carcase is condemned as unfit for human consumption.

GRADING STATISTICS.

Table showing the percentages of pig carcases falling within the weight and grade classes indicated during October, 1938.

Under c.1.0.21		c.1.0.21 to c.1.1.13					c.1.1.14 to c.1.2.3.					Totals
Suitable	Un-suitable	Grade 1	Grade 2	Grade 3	U.L. & U.F.	U.	Grade 1	Grade 2	Grade 3	U.L. & U.F.	U.	
.82	.09	1.88	.86	.32	.15	.02	4.54	4.13	1.99	.99	.02	15.81

Grade A.				Grade B.				Grade C.				
1	2	3	4	1	2	3	4	1	2	3	4	
8.72	22.84	3.87	.65	5.68	20.86	4.92	1.30	1.73	8.53	1.50	.32	80.92

Ungraded Carcases.

Under Grade A measurements. U.L.	Over Grade C measurements U.F.	Wholly condemned U1.	Wholly black, injured or damaged U2.	Overweights, boars, sows, etc. X.	Partly Black Y.	
.02	2.05	.05	.42	.63	.08	3.27
					Total	100%

These figures have been calculated from the purchase and grading statements which the curers furnish to the Ministry.

The volume of trade in pig carcases was rather heavier in October than in September. Fixed prices were the same for these two months, and the realised average value per cwt. was only 2d. lower in October, at £3 5s. 2d. per cwt. The average weight, however, was increased by 3 lbs. to c.1.2.22, and the average price per carcase was 1/5d. dearer at £5 10s. 8d.

The following table gives the percentage results of an analysis of the purchase and grading statements furnished by Wiltshire Bacon Curers in respect of live pigs delivered on direct contract by producers during the month of November, 1938.

Weight Class.	Grade 1.	Grade 2.	Grade 3.	Unsuitable U.L. or U.F.	Total
Under c.1.0.0					—
c.1.0.0 to c.1.0.20					.39
c.1.0.21 to c.1.2.3	52.03	26.86	5.11	1.82	85.82
	Grade A.	Grade B.	Grade C.		
c.1.2.4 to c.1.2.7	2.75	2.30	.99	.18	6.22
c.1.2.8 to c.1.3.14	2.20	3.48	1.34	.48	7.50
Over c.1.3.14.					.07
				Total	100.00

The average net price per cwt. in respect of these deliveries works out at £3 10s. 10d., after making allowance for insurance and contribution to the Pigs Marketing Board.

The average weight works out at c.1.1.21½, the net average price per pig being £5 2s. 1d.

COST OF STANDARD PIG RATION.

The average retail cash price per cwt. of the standard ration for the sixteen weeks' period ended 24th December, was 8/9¾d. The average price for the similar period ended 19th November, was 9/1¼d. These figures have been calculated by the Ministry from returns collected from ten representative centres in Northern Ireland.

The following is the ration upon which the feeding cost is based :—

Maize Meal	30%
Barley Meal	30%
White Pollards	20%
White Bran	10%
Meat Meal (60% Protein)	10%

THE CATTLE INDUSTRY (EMERGENCY PROVISIONS) ACTS, 1934 AND 1935 AND THE LIVESTOCK INDUSTRY ACT, 1937.

The following is a summary made under these Acts up to and including 7th January, 1939.

Live Weight	*Number of Animals*	*Total Amount Paid* £ s. d.
England and Wales	4,765,941	11,694,595 14 10
Scotland	1,449,026	3,781,196 13 4
Northern Ireland	493,290	1,046,549 18 10
Total (United Kingdom) ..	6,708,257	16,522,342 7 0
Dead Weight		
England and Wales	146,046	366,019 19 5
Scotland	45,014	130,613 14 7
Total (Great Britain)	191,060	496,633 14 0

NUMBERS OF FAT CATTLE CERTIFIED FOR SUBSIDY.

The numbers of fat cattle certified for payment of subsidy, as published by the Livestock Commission in respect of November, 1938, are shown hereunder :—

	November, 1938.					Corresponding totals in	
	Home-bred		Imported		Total	Nov., 1937	Nov., 1936
	Ordinary Grade	Quality Grade	Ordinary Grade	Quality Grade			
England ..	29,178	36,155	8,092	18,911	92,336	94,399	97,850
Wales ..	5,309	3,645	135	401	9,490	8,621	10,830
Scotland ..	2,880	13,835	1,102	8,649	26,386	25,999	26,369
Northern Ireland	6,813	1,665	1,124	497	10,099	9,623	9,488
United Kingdom	44,100	55,300	10,453	28,458	138,311	138,642	144,537

As the great majority of fat stock markets are held on the early days of the week the rate of marketing of fat cattle cannot be judged accurately from the number of animals marketed in a calendar month. For comparative purposes appropriate weights are applied by the Livestock Commission to each day of the week, and the figures for each calendar month are adjusted accordingly, so as to allow as far as possible for the fact that a large number of markets are held on Mondays, and that the number of markets held decreases day by day as the week proceeds. The adjusted figures for November, 1938, 1937 and 1936 are 135,771, 129,580 and 143,213 respectively.

The average prices per live cwt. of certified cattle in November, 1938, were :

	November, 1938.						Corresponding averages in			
	Ordinary Grade		Quality Grade		Average		November, 1937		November, 1938	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
England and Wales	33	11	37	1	35	11	38	5	32	4
Scotland ..	35	5	40	3	39	6	42	9	37	5
Northern Ireland ..	31	4	32	5	31	7	34	8	29	0
United Kingdom ..	33	8	37	10	36	4	39	0	33	0

WHEAT ACT, 1932.

ADVANCE PAYMENT TO REGISTERED GROWERS ON ACCOUNT OF DEFICIENCY PAYMENTS FOR 1938-39.

In accordance with Byelaw 31 of the Wheat Byelaws, 1932, the Wheat Commission have decided to make an advance payment to all registered growers who make proper applications on valid wheat certificates delivered to the Commission during the period 1st August to 31st December, 1938. In the case of those growers who delivered valid certificates after the 28th October, 1938, the advance will be at the rate of 4/- per cwt., equal to 18/- per quarter of 504 lbs. Those growers who have already received an advance payment at the rate of 3/- per cwt. (13/6d. per quarter) in respect of valid wheat certificates delivered to the Commission between 1st August and 28th October, 1938, will receive an additional amount of 1/- per cwt. (4/6d. per quarter) in order to put them on the same footing as the growers who have delivered certificates since 28th October.

This advance payment will be made on or about Tuesday, the 31st January, 1939, and is on account of the deficiency payments that will become due under the Wheat Act for the cereal year ending 31st July, 1939.

The question of making an advance payment to growers who deliver wheat certificates after the 31st December, 1938, will be considered by the Commission in due course.

BUTTER AND CREAM MARKETING SCHEME, (N.I.) 1936.

ELECTION OF MEMBERS TO THE BOARD.

In accordance with the terms of the Butter and Cream Marketing Scheme (Northern Ireland), 1936, an election of members to the Board is due to be held in the month of March next. Under Paragraph 6 of the Scheme two of the members elected by registered producers, the management of whose premises and business is controlled by their milk suppliers through an elected Committee of Management, retire in the month of March next. The member elected by registered producers who privately own or occupy premises at which butter or cream is produced will also retire that month. The following are the relevant dates for the purposes of the election:—

(1) Register of producers closes on the 1st February, 1939.
(2) Nominations must be received by the Ministry not later than the 20th February, 1939.
(3) Voting papers will issue not later than the 10th March, 1939.
(4) Voting papers must be received back in the Ministry not later than the 20th March, 1939.

It is to be particularly noted that nomination of candidates for election, and the casting of votes at an election of members, shall be made on behalf of a registered producer by the Manager of the creamery owned or occupied by that registered producer.

LEGISLATION AFFECTING AGRICULTURE IN 1938.

The following are the brief details of the principal Acts and Orders made in Northern Ireland during 1938, together with the more important legislative measures made in Great Britain which affect Northern Ireland agriculturists.

MILK AND MILK PRODUCTS ACT (NORTHERN IRELAND), 1938.

Section 1 enables the equalisation payment and bonus payable out of the Milk Fund under the Milk and Milk Products Act (Northern Ireland), 1934, to include payments in respect of milk delivered to processed milk factories. Prior to the passing of this Section, equalisation payment and bonus was only payable to creameries and certain other prescribed undertakings engaged in the manufacture of butter or cream. The effect of this Section was to enable payments to be made to undertakings engaged in the manfacture of other milk products.

Section 2 requires all premises (not being registered creameries) used for the manufacture of milk products to be registered with the Ministry of Agriculture. The Ministry may refuse to register premises if it is not satisfied that there is available, within the area concerned, a sufficient supply of milk to justify the setting up of a new factory.

Under Section 4 of the Milk and Milk Products Act (Northern Ireland), 1934, the Ministry is empowered to prescribe the rate of licence fees payable in respect of butter or margarine sold by persons holding licences under that Section.

Section 5 of the 1938 Act enables the Ministry to prescribe two rates of licence fees—a higher rate and a lower rate—the object of this provision being to enable a reduced rate of licence fees to be prescribed in respect of sales of butter or margarine for manufacturing purposes.

Section 6 empowers the Ministry to make a repayment in cases where fees at the full rate have already been paid in respect of butter or margarine sold for manufacturing purposes.

REGULATIONS, ETC. UNDER THE MILK AND MILK PRODUCTS ACTS (NORTHERN IRELAND), 1934 to 1938.

80. Butter and Margarine (Sales) Regulations (Northern Ireland), 1938.

The object of these Regulations is to implement the provisions of Sections 5 and 6 of the Milk and Milk Products Act (Northern Ireland), 1938.

92. Order prescribing the milk factory of Messrs. Nestle's at Ballymoney as a processed milk factory for the purpose of Section 1 of the Milk and Milk Products Act (Northern Ireland), 1938.

110 to 112. Milk (Grade A) Regulations (Northern Ireland), 1938.

Milk (Grade B) Regulations (Northern Ireland), 1938.

Milk (Grade C) Regulations (Northern Ireland), 1938.

These Regulations prescribe the rate of bonus payable in respect of milk delivered to a processed milk factory, and also provide for the continuance of the existing scales of producers' licence fees payable under Section 2 of the Milk and Milk Products Act (Northern Ireland), 1934.

109. Milk (Equalisation Payments) Regulations (Northern Ireland), 1938. Extension of the scheme to include processed milk factories.

121. Milk (Equalisation Payments) Regulations (Northern Ireland), 1938. No. 2. Extending of the period of payments up to 30th Sept., 1939.

SALE OF ICE-CREAM REGULATIONS, ETC.

68. Order appointing 15th June, 1938, as the appointed day for the coming into operation of the Sale of Ice-Cream Act (Northern Ireland), 1937.

73. Regulations prescribing the requirements as to the quality of ice-cream and the conditions subject to which licences for the manufacture or sale of ice-cream under the designation "Premium" may be issued.

MARKETING OF EGGS.

10. Marketing of Eggs Rules (Northern Ireland), 1938.

These Rules superseded the Rules previously in operation governing the handling, etc., of eggs by holders of wholesale dealers' licences. These Rules deal with such matters as the registration of premises used for wholesale dealings: the use of collection cases, identification tickets, etc., by wholesale dealers and retailers who purchase eggs from producers: the testing, grading and packing of eggs by wholesale dealers: the records and returns to be kept or made by wholesale dealers: and certain rules relating to preserved, cold-stored, etc., eggs.

25. Marketing of Eggs (Retailers') Rules (Northern Ireland), 1938.

These Rules prescribe for the purpose of Section 5 of the Marketing of Eggs Act (Northern Ireland), 1936, the standards to be complied with by new-laid and "second" eggs respectively. They also provide that

holders of retailers' licences may be authorised by the Ministry to test eggs, and conditions are prescribed governing the testing of eggs by persons so authorised. It is provided that a retailer shall not purchase eggs in any market unless he has been authorised by the Ministry to test eggs in pursuance of the Rules.

26. Marketing of Eggs (Retailers' Prices) Rules (Northern Ireland), 1938.

These Rules provide that a retailer shall not make any deductions from the prescribed prices in respect of "second" eggs or "rejects" unless he has been duly authorised by the Ministry to test eggs in accordance with the prescribed Rules.

31. Order appointing 1st April, 1938, to be the appointed day for the coming into operation of Section 5 of the Marketing of Eggs Act (Northern Ireland), 1936. This Section requires all eggs sold by retail to be sold either under the description "new-laid eggs" or "second eggs", and all eggs must comply with the standard prescribed for the description under which they are sold.

134. Marketing of Eggs (Amendment) Rules (Northern Ireland), 1938. These Rules require cases of eggs sold by wholesale dealers to be code-dated throughout the year, instead of during eight months only, as had previously been required.

MARKETING OF POTATOES ACT (NORTHERN IRELAND), 1938.

The enactment of this measure was recorded in the November issue of this Report. Its main object is to safe-guard Ulster potato growers by preventing the undercutting of prices in respect of potatoes exported to Great Britain. Export prices of potatoes have hitherto been, to some extent, controlled by voluntary agreement between licensed merchants. In future prices will be fixed by a statutory body to be known as the Potato Marketing Committee, on which representation will be given to licensed exporters, to producers and to the Ministry of Agriculture. Prices would be announced from week to week varying according to the state of the market in Great Britain.

The Act also prescribes a time limit in each year for the lodgement of applications for licenses to export potatoes from Northern Ireland, and gives certain discretionary powers in regard to the granting of new licences.

MARKETING OF FRUIT (CONSOLIDATION) RULES (NORTHERN IRELAND), 1938.

These Rules came into operation in September, 1938, and represented in the main a codification of the various Rules made from time to time under the

Marketing of Fruit Act (Northern Ireland), 1931. Minor changes introduced in the new Rules included a provision whereby the 10 stone barrel (126-140 lbs.) was removed from the list of containers approved for the export of graded apples, and added to the list of containers allowed for the shipment of apples which failed to reach the requirements for Standard C, as specified in the Rules.

The Consolidation Rules further provided that each consignment of apples despatched to Great Britain or the Isle of Man should be accompanied by a return in the prescribed form to be handed to the carrier with the consignment to which it referred.

CHRYSANTHEMUM MIDGE (NORTHERN IRELAND) ORDER, 1938.

This Order, made in December, 1938, is referred to elsewhere in this Report. Following the appearance in the Sydenham district of Belfast of a serious pest of chrysanthemums hitherto unknown in Northern Ireland, and described as the Chrysanthemum Midge, it has been necessary by this Order to prohibit, for the time being, the keeping or growing of chrysanthemums inside a limited area within the city of Belfast. The movement of chrysanthemum plants from within the scheduled area to any place outside such area is also prohibited.

THE FRUIT TREE PESTS (NORTHERN IRELAND) ORDER, 1938.

This Order, made in December, 1938, is designed mainly for protection of nurseries and orchards in which fruit trees are grown for commercial purposes. Where fruit trees growing on any premises are so affected with a pest or disease as to constitute a danger to fruit trees growing on adjacent premises, power is given to require the owner of the affected trees to take such measures as may be necessary to prevent the spread of the infestation.

SHEEP DIPPING (NORTHERN IRELAND) ORDER OF 1938.

This Order was made on the 25th January, 1938, and provided that the summer sheep dipping period shall commence on the 15th June and terminate on the 15th August in each year, instead of the 28th June to the 28th August, as was the case in 1937.

SHEEP DIPPING (SPECIAL REGULATION) ORDER OF 1938.

This Order was made on the 22nd June, and provided for the double dipping of sheep in Northern Ireland during the period 10th October to 12th November, 1938.

FOREIGN HAY AND STRAW (IRELAND) ORDER OF 1912 AMENDMENT (NORTHERN IRELAND) ORDER OF 1938.

The 1912 Order provided, *inter alia*, that from certain foreign countries (a) hay or straw which at the time of importation is being used for packing merchandise, and (b) manufactured straw not intended for use as fodder or litter for animals, could be landed in Northern Ireland without a licence.

As it was felt that there was the possibility that disease might be introduced by such hay or straw, the Ministry made the Order above referred to, which revoked the two exceptions mentioned, and the position now is that only hay or straw can be imported which has been authorised to be landed by a licence issued by the Ministry. Certain foreign countries which are known to be free from foot and mouth disease are exempted from this provision.

AGRICULTURAL MARKETING—PIGS.

During 1938 the Ministry made in all eight Orders under Section 7 (3) of the Agricultural Marketing Act (Northern Ireland), 1933, imposing special levies for the purpose of covering the losses which have been experienced by the Pigs Marketing Board in trading under the Pigs Marketing Scheme. The Pigs Marketing (Northern Ireland) (Special Levy) (No. 1) Order, 1938, and the Pigs Marketing (Northern Ireland) (Special Levy) (No. 2) Order, 1938, imposed a levy of 2/- per pig upon all producers in the case of sales of pigs to a curer or to the Board, and covered the period 30th May, 1938, to 23rd July, 1938. From the 25th July, 1938, the amount of the levy was increased to 3/- and was maintained at that level by The Pigs Marketing (Northern Ireland) (Special Levy) Orders, 1938 (Nos. 3-7), until the 10th December, 1938. The Pigs Marketing (Northern Ireland) (Special Levy) (No. 8) Order, 1938, further increased the amount of the special levy to 4/- per pig as from the 12th December, 1938, and this Order was effective until the 7th January, 1939.

THE WHEAT ACT, 1932.

The Minister of Agriculture and Fisheries during 1938 made six Orders under The Wheat Act, 1932, prescribing the rates of quota payment to be made by millers and importers of flour in respect of their output.

The Wheat (Anticipated Supply) No. 1 Order, 1938, dated January, 18th 1938, made by the Minister of Agriculture and Fisheries under Section 2 of the Act was in connection with the quantity of home-grown millable wheat of their own growing which he anticipated would be sold by registered growers during the cereal year beginning on the first day of August, 1937, and the following Orders relate to similar announcements of anticipated supply during the cereal year commencing 1st August, 1938:—The Wheat (Anticipated

Supply) No. 2 Order, 1938, dated the 8th August, 1938; The Wheat (Anticipated Supply) No. 3 Order, 1938, dated October 11th, 1938, and The Wheat (Anticipated Supply) No. 4 Order, dated November 8th, 1938.

The Order which was of greatest immediate interest to wheat growers in Northern Ireland was the Wheat (Ascertained Average Price) Order of 1938, dated August 10th, 1938, made by the Minister of Agriculture and Fisheries under Section 2 of the Act. By this Order the Minister announced the price which he determined to have been the average price obtained by all registered growers throughout the United Kingdom for home-grown millable wheat of their own growing sold by them in the cereal year ended on the 31st day of July, 1938, at 8/4.394d. per cwt. The quantity of home-grown millable wheat of their own growing sold by registered growers in that cereal year was by the same Order announced at 24,550,000 cwt. As this quantity is less than the 36,000,000 cwt. specified by the Agriculture Act, 1937, the rate of Deficiency Payments to be made to registered growers during the cereal year in question was 1/7d. per cwt., representing the difference between the standard price of 10/- per cwt. and the ascertained price announced in the Order, less a deduction for the administrative expenses of the Commission.

AGREEMENTS BETWEEN THE GOVERNMENT OF THE UNITED KINGDOM AND THE GOVERNMENT OF EIRE.

Of these agreements, which were confirmed on the 17th May, 1938, by the Eire (Confirmation of Agreements) Act, 1938, the trade agreement is of direct interest to agriculturists in Northern Ireland. This agreement, which came into force on the 19th May, 1938, provided, *inter alia*, for the admission into Eire of certain agricultural produce from the United Kingdom, either duty free or at rates of duty substantially below those which had previously been in operation. In some cases, notably those of bacon, raw apples and raw tomatoes, the quantities to be admitted duty free are subject to regulation. One result of the agreement of importance to importers of cattle was the rescinding of the Cattle (Import Regulation) Order, 1933. Accordingly, British import licences, as well as the marking of cattle previously carried out in accordance with that Order, are no longer required in respect of any cattle imported from Eire as from the date of operation of the agreement. The full text of the agreements is obtainable from His Majesty's Stationery Office, or through any bookseller, price 4d. net. In ordering copies the Reference No. (Cmd. 5728) should be quoted.

TRADE AGREEMENT WITH THE UNITED STATES.

A Trade Agreement between the United Kingdom and the United States of America, was signed at Washington on 17th November, 1938, and has been published as a Command Paper, copies of which may be purchased from H.M. Stationery Office either directly or through any bookseller, price 1s. 6d. per copy. In ordering copies, the Reference No. (Cmd. 5882) should be quoted.

AGRICULTURAL NOTES.

SEASONAL FARM NOTES.

Ploughing.—The work of sowing and planting is likely to be delayed if ploughing is not completed in good time. It is, therefore, necessary to take every opportunity of favourable weather and soil conditions to push forward this work, especially in a season such as this when favourable opportunities for ploughing are few.

"Ploughing in" Farmyard Manure.—In order to spread farm work over the season as much as possible and thus avoid a rush of work in spring, it is a good plan to apply the farmyard manure to stubble ground intended for potatoes and plough it into the land when the stubble is being ploughed. Advantage may be taken of spells of frosty weather to cart the manure to the field but it should be left in compact heaps and spread only as ploughing proceeds so as to conserve its fertilising properties to the full. In the case of the stiffer classes of soils especially, the application of the farmyard manure at the time of ploughing the stubble land is preferable to its application in the drills.

Pasture Improvement.—If, owing to the wet autumn, it has not been possible to attend to the harrowing and manuring of pastures, this work may yet be carried out provided that the weather is favourable and that time can be spared.

Surplus farmyard manure may be applied to pastures. This will encourage an earlier growth of grass which is likely to be required this season, due to the shortage of straw fodder of good quality.

Application of Lime.—The best place in the ordinary rotation to apply lime is on top of the ploughed ground before the last corn crop is sown. Lime may also be applied to grass but this should be done only during autumn and winter as growing grass may suffer injury, especially if burnt lime is being used. Lime is washed down very quickly into the subsoil beyond the reach of plant roots and it is essential to do every thing possible to keep it in the top layer of the soil. Therefore, lime should never be ploughed down but always applied on top of ploughed land and only harrowed in lightly. Recent observations have shown that if burnt lime is applied to the ground just before the grass seeds are sown there is a risk of injury to the young seedlings, especially those of clovers. It is, therefore, advisable to plough the ground for sowing out in good time and have the lime spread at least three weeks before the seeds are sown.

Potatoes.—Potatoes should be sorted and all except the chats and diseased tubers put in a dry store if one is available. Seed of maincrop varieties should be boxed as soon as possible, if this has not already been done, so

that they may be properly sprouted before planting time arrives. Potatoes in boxes during the recent severe frosts should be examined carefully and any frosted tubers removed. Owing to the low prices prevailing so far this year for potatoes a good opportunity is now afforded of obtaining supplies of seed from pure and healthy crops, but it is advisable that supplies should be obtained at once. Lists giving the names and addresses of growers who have obtained the Ministry's Purity Certificate for their crops can be obtained free, on request, from the Ministry.

Oats.—In cases where the crop was seriously damaged by the weather, supplies of fresh seed will have to be obtained. Special care will have to be exercised in choosing seed oats this spring as it is likely that samples of inferior quality and of low germinating capacity will be on the market. Farmers who are in doubt should consult the Agricultural Instructor for the district who will advise with regard to suitable varieties and sources from which good seed may be obtained. It is also a wise precaution to have samples tested for germination at the Ministry's Seed Testing Station, unless the seller is able to produce a Certificate of the results of a recent test.

Forest Trees.—The planting of trees should be carried out as soon as possible. Trees are a great asset on any farm. They provide shelter while growing and those not required for permanent shelter will supply useful timber for many jobs on the farm when cut down. Farmers should remember that if the supply of trees is being continually depleted and no young trees planted in their place, there will soon be none to cut down. Such a policy cannot be defended as it leads to the countryside being denuded of trees and affects adversely the amenities of the farm. It should be noted in this connection that the occupiers of holdings in respect of which advances were made prior to the passing of the Irish Land Act of 1909 are forbidden by that Act to cut down or uproot any tree (other than a fruit tree or osier) which is necessary for the ornament or shelter of the holding, and that the permission of the Ministry of Agriculture must be obtained before any tree is cut down or uprooted. Persons convicted of felling trees without having previously obtained permission to do so are liable to a penalty not exceeding five pounds for each tree felled or uprooted.

Waste ground which cannot be cultivated should be planted with trees and it should be the aim of every farmer to plant a few trees every year. Leaflets No. 62, 72 and 85 give useful information on the subject. See the announcement of the Ministry's Scheme for the supplying of young trees at a cheap rate on page 537.

Improvement Works.—It is often possible at this time of year to find time to carry out such improvement works on the farm as drainage, fencing, road-mending, etc. Farmers are reminded of the Ministry's Land Improvement Scheme, under which grants can be obtained towards the cost of labour

employed in carrying out approved works. Particulars of this Scheme and application forms will be sent on request.

Restoration of Hedges.—Hedges which are allowed to grow up, become thin at the bottom and do not make an adequate fence for cattle and sheep. A proper fence will be obtained only if there is a thick growth at the bottom of the hedge.

A hedge which has become over-grown should be treated in the following manner. First, all undesirable plants such as briars, honeysuckle, etc., should be taken out by the root, if possible, and all decayed stumps removed. The dyke or ditch back should be cleared out, the bank repaired if necessary, and the hedge then "laid".

In "laying" a hedge the idea to be aimed at should be to utilise for laying, only as many of the plants as are necessary to make a good framework fence when they are laid horizontally along the bank. The plants in the hedge should be inspected and those of a vigorous type which arise from near the base of stumps and which are fairly straight and long selected for "laying". Plants which are in excess of those required for "laying" should all be cut cut at ground level except one at two feet intervals. These latter should be cut off about 3 feet above the ground. If there are gaps in the hedge and it is not possible to leave these growing stumps at 2 feet intervals, stakes should be cut from the plants removed and driven into the ground where the gaps occur so as to form with the growing stumps a continuous row of stakes at 2 feet intervals.

The young shoots selected for "laying" should then be cut half-way through with an upward cut where possible, bent downwards away from the cut side and interlaced between the stumps. It is a mistake to lay too many plants horizontally as room will be required for the young growths which develop from the stumps and from the laid plants. When the "laying" has been completed the smaller protruding twigs should be trimmed. If there is any tendency on the part of the "laid" shoots to spring upwards they may be secured by interweaving thin hazel rods between the tops of the stakes.

Once a hedge has been properly "laid" it can be kept in good condition for many years by annual trimming. The trimming should be carried out with a proper, well-sharpened hedge knife. All cutting should be done from the bottom upwards with an upward swing of the knife. The ultimate object of the trimming should be to form a wedge-shaped hedge, wide at the foot and narrow at the top.

SEASONAL LIVESTOCK NOTES.

The Use of Home-grown Foods in Stock-Feeding.—When prices for farm produce are low and prices of feeding stuffs high, home-grown foods should be used where possible for feeding to stock. Chat potatoes can be fed

to pigs but must first be cooked. Young pigs may get up to 2 lb. of cooked potatoes to 1 lb. meal mixture and older pigs as much as 4 lb. cooked potatoes to 1 lb. meal mixture. Examples of suitable meal mixtures for feeding with potatoes are given in Leaflet No. 35. Milk is an excellent food for all classes of young, growing stock and, where supplies of separated milk, skim milk or buttermilk are available, farmers are strongly advised to utilise this home-produced food in preference to purchasing expensive protein foods or proprietary rearing mixtures.

Feeding Dairy Cows.—A suitable ration for dairy cows designed to contain as much home-grown food as possible could be made up as follows:—

3 parts by weight crushed Oats.
1 part „ „ crushed Wheat.
1 „ „ „ Maize Meal.
1 „ „ „ Red Bran.
2 parts „ „ Decorticated Earthnut Cake
With 3 lb. mineral mixture consisting of equal parts of ground limestone, steamed bone flour and common salt to 1 cwt. of this meal mixture.

This ration should be fed at the rate of 3 lb. per day for each gallon of milk produced, along with a moderate allowance of good hay and roots. Fresh clean water should be provided freely.

Store Cattle.—A suitable meal mixture for store cattle consists of:—

2 parts by weight crushed Oats.
1 part „ „ Maize Meal.
1 „ „ „ Decorticated Earthnut Cake.

This ration may be fed at the rate of 2 or 3 lb. per head daily, along with an allowance of hay or straw and roots.

Fattening Cattle.—A ration suitable for fattening cattle is a mixture composed of:—

2 parts by weight crushed Oats.
1 part „ „ crushed Wheat.
1 „ „ „ Maize Meal.
1 „ „ „ Decorticated Earthnut Cake.

This mixture may be fed at the rate of 3 lb. per head daily at the beginning of the fattening period and gradually increased to from 6 to 8 lb. per head daily, according to the age and weight of the animals. In addition to this meal mixture an allowance of hay and roots should be given.

Breeding Sows.—The following meal mixtures are suitable for (1) in-pig sows, and (2) sows with litters:—

(1) 4 parts by weight Maize Meal.
4 „ „ „ Brown Pollard.
2 „ „ „ Red Bran.
With 1 lb. of mineral mixture consisting of 3 parts ground limestone and 1 part common salt to 1 cwt. of meal mixture.

(2) 3 parts by weight Maize Meal.
1 part „ „ Flaked Maize.
2 parts „ „ Red Bran.
2½ „ „ „ Brown Pollard.
1½ „ „ „ Meat Meal (60 per cent. Protein)
with 1 to 2 lb. of mineral mixture as above to 1 cwt. of meal mixture.

Fattening Pigs.—A suitable meal mixture for fattening pigs consists of:—

3 parts by weight Barley Meal.
2 „ „ „ Maize Meal.
2 „ „ „ crushed Wheat.
1 part „ „ Pollard.
1 „ „ „ Red Bran.
1 „ „ „ Meat Meal (60 per cent. Protein)
with 1 lb. of mineral mixture as above to 1 cwt. of meal mixture.

Fattening pigs should get about 1 lb. of meal daily for each month of age, with a maximum of from 6 to 7 lb. per head per day towards the end of the fattening period.

The Purchase and Storage of Meals.—It is essential that meals for livestock should be in good fresh condition, and attention is directed to the care necessary when purchasing meals or meal mixtures to ensure that they are fresh. Frequently, serious digestive troubles and even deaths have occurred following the use of stale or badly stored meals. The smell of a sample is often a good guide as to its freshness and on no account should samples that have a musty smell or are infested with mites be purchased, even although they are offered at attractive prices.

Care should also be given to the storage of meals on the farm. The meals should be kept as dry as possible and unless good storage facilities are available it is not a wise plan to purchase very large quantities of meals at the one time, owing to the risk of deterioration in quality when they have to be kept for a long period before use under unsuitable storage conditions. Iron bins not only aid in keeping the foodstuffs dry, but also prevent vermin from gaining access to them and should be used for the storage of meals where available.

Sheep.—The breeding flock of sheep will require special care from now onwards, especially if early lambs are expected. A small daily allowance of a mixture of equal parts of oats, bran and decorticated earthnut cake, along with a turnip each, will maintain the ewes in good condition.

There is evidence to suggest that pregnancy disease of ewes may be prevented to some extent at least, by giving the animals plenty of exercise and to this end a drive from one field to another or around the field each day might be practised where the disease is feared. Too much hand feeding, since it tends to make the ewes lazy, should be avoided, but it has been shown by experiments in Scotland that some protein-rich food is an advantage.

During spells of severe frost or when the ground is covered with snow, the sheep should get an allowance of hay. Proper feeding before lambing will lead to the production of stronger and more vigorous lambs and will also increase the flow of milk from the ewes, thus enabling them to feed their

lambs well. A fresh field of pasture should be left ungrazed from now onwards and a dressing of sulphate of ammonia applied, about the middle of February if necessary, so that the ewes and young lambs may have good, fresh grass, when they require it.

SEASONAL GARDEN AND ORCHARD NOTES.

Planting and Pruning.—The planting of fruit trees and bushes should be completed as soon as possible and advantage should be taken of every period of favourable weather to push on the work of pruning so that this may be finished before spraying begins. Should favourable weather for winter spraying with tar-oil washes prevail, spraying should be given precedence over pruning and the spraying carried out, even though the pruning has not been finished. The spraying of tar-oil washes should not be done during frosty weather.

Spraying Equipment.—The spraying apparatus, including guns, lances, hoses, etc., should be thoroughly overhauled and all defective parts renewed. Neglect to do this now may result in a breakdown when spraying is in progress, involving not only delay but possibly a loss of an opportunity of getting this important work done thoroughly.

Hot-Beds.—Where a supply of horse manure is available a hot-bed can be prepared for raising an early supply of such vegetables as Brussels sprouts, cauliflower, onions, lettuce and tomatoes. As the fresh manure is collected it should be mixed with about half its bulk of old leaves or, if these are not available, of old short manure. This mixture may be stored either under cover or in the open but if in the open it should be made into a rounded heap brought to a point to throw off the rain. Each subsequent supply of fresh manure, after having been mixed with leaves or old manure, should be incorporated in the heap, the heap being turned so that the material on the outside of the heap is brought inside. When enough material has been collected the heap should be turned at least 3 times at intervals of 3 or 4 days. After the final turning the bed can be prepared. It should be made from 18 inches to 20 inches wider and longer than the frame to be used. The fermenting material should be placed in layers 8 or 9 inches deep and each layer firmed by treading. This firming ensures that the heat is produced more slowly but over a longer period than if the material were piled up loosely. When the frame is placed in position more of the manure should be packed outside it. The lights should then be placed on the frame but they should be raised a few inches at the top for some days after the completion of the bed to allow steam and noxious gases to escape.

Seed-Sowing in Frames.—A suitable compost for raising seedlings consists of:—

Loam 5 parts.
Leaf soil, 4 parts, or 2 parts peat moss litter.
Sand 2 parts.

To each bushel of this compost should be added 1½ ounces superphosphate together with a little lime or chalk. Where the practice of sterilising the soil is carried out, the material should be sterilised separately, and then mixed, the superphosphate and lime being added after sterilising and not before. The seed pans or boxes after being filled with the compost should be soaked with water and allowed to drain. The seeds should be sown thinly and the boxes (or pans) plunged in the fermenting material inside the frame. Cover the boxes with a sheet of glass and darken with a sheet of paper. After the seedlings appear remove the paper and gradually admit air by propping up the glass. Later the sheet of glass should be removed and the boxes placed close to the glass of the lights so as to encourage sturdy growth. When large enough the seedlings may be pricked out into other boxes and eventually hardened off before being planted outside.

Shallots and Potato Onions.—Towards the end of January, if the ground can be got in a moderately dry state, shallots and potato onions can be planted. These crops prefer fairly rich soil. The bulbs can be planted by pressing them into the ground leaving only the tips showing. In districts where the soil is light and warm a sowing of broad beans can be made out of doors early in February.

Carrots, etc.—The heaps of stored roots should be examined and any sprouting tops removed. Quantities of parsnips should be lifted and stored during mild weather so that a supply will be available for use when the ground is frozen or covered with snow.

General.—A supply of stakes for the support of peas, herbaceous plants, etc., should be obtained and prepared so that these may be available when required.

SEASONAL POULTRY-KEEPING NOTES.

Hatching.—Hatching should now be proceeded with to full capacity of accommodation so that sufficient pullets may be produced. As a rough guide to the number of eggs to set, it may be taken that, on an average, for each pullet suitable for retention as a layer, upwards of six eggs will require to be set. It is important to bear in mind the accommodation available when planning hatching operations as it is a very foolish practice to attempt to rear a greater number of chickens than the housing accommodation permits. A smaller flock of well-reared birds will usually be found to be more profitable than a larger but indifferently reared flock. Besides, it is a grave mistake to

overcrowd the birds in the rearing houses, or to attempt to run an excessive number of adult birds on a given area of land, for if this is done the ground will, in time, get fowl-sick and the keeping of birds successfully will be rendered impossible.

Selection and Storage of Eggs for Hatching.—If good hatching results are to be expected it is important that attention should be paid to the selection and storage of the eggs. On no account should eggs under 2 oz. in weight, abnormally large eggs, or eggs which are badly shaped or have thin shells, be set. An effort should be made to have eggs for setting as fresh as possible and at the most not more than one week old. If at all possible the eggs for hatching should be tested by the light test to ascertain their internal quality, if there are hair cracks in the shells, and, incidentally, if they are fresh. Eggs showing the yolk against the shell at one side, having abnormal air spaces, having meat spots or blood spots or having hair cracks in the shells should not be set. There is evidence to suggest that the condition in eggs known as thin or watery whites is inherited.

During storage the eggs should be kept in an airy room having a fairly even temperature of not less than 40 degrees or more than 70 degrees Fahrenheit. Excessive evaporation from the eggs should be avoided as this is detrimental to hatching results. This can be largely prevented by placing the eggs in fresh bran or chaff, or even wrapping them in newspapers. It is also beneficial to turn the eggs once daily during storage. A suitable and convenient receptacle for storing hatching eggs is an ordinary egg case. If the lid of the case is securely fastened, the eggs can be quickly turned by turning the case over each day.

Management of Incubators.—The results of hatches depend to a considerable extent on the running of the incubator. If the incubator is not working properly, or if it is not well attended, the result of the hatch will be disappointing. The incubator should be carefully examined at the beginning of the season and the capsule and thermometer tested. The lamp burner should be cleaned and a new wick fitted if necessary. In the case of machines having a moisture device with a wick it will be necessary to replace this wick if the existing one has got hard, as it will not conduct water when in that condition. The felts of the machine should also be examined and replaced by new ones if they are found to be hard and tightly compressed. It should be remembered that a certain amount of fresh air is expected to filter through the felts when they are in position in the machine and that if their condition is such as to prevent all air from passing through they will prevent good hatches being obtained.

The incubator should be set perfectly level, using a spirit level. If the machine is not level, a uniform air temperature cannot be maintained and poor hatches will likely result. The incubator should be placed away from

the walls, and on a slatted floor, if not provided with legs, to ensure a thorough circulation of air all round it.

Further hints on the running of incubators are given in Leaflet No. 20.

Incubator Room.—The room in which the incubator is placed should be well ventilated, but free from draughts, and constructed in such a way that extremes of temperature will not occur, and if possible a temperature between 60 and 70 degrees Fahrenheit should be maintained in the room.

Avoidance of Chills.—Chills, both during incubation and after hatching, are the most common cause of loss in chicken rearing, and every precaution should be taken to avoid them. The fact that eggs may be chilled before being placed in the incubator and hatchability thus destroyed should not be overlooked. At this time of year when sharp changes of temperature are frequent, particular care should be given to the collection and storage of eggs intended for hatching. Eggs should be collected frequently and stored in a suitable room. They should not be left in the poultry house or stored in a room where they are likely to get chilled by frost. When the drawer is taken out of the incubator during incubation for the turning of the eggs, care should be taken not to leave it out any longer than is recommended in the instructions accompanying the incubator.

Before removing the chicks from the incubator, the temperature of the machine should be lowered gradually until it reaches the same level as that of the hover or brooder to which the chickens are to be transferred. Great care should be taken when transferring the chicks from the incubator to the hover as it is in so doing that chills are often caused. The birds may be transferred in the incubator drawer, suitably covered, or in a basket lined with a piece of blanket.

Management of Hover.—The temperature under the canopy of the hover should be about 90 degrees Fahrenheit when the chicks are first placed in it and the temperature maintained at from 85 to 90 degrees for the first week. A temporary frame of light boards should be placed around the hover to prevent the chicks from wandering too far from the source of heat during the first week. This frame will also aid in preventing floor draughts from reaching the chicks.

Unsatisfactory Hatches.—Should unsatisfactory hatches be obtained or an abnormal number of deaths occur, the local poultry instructor should be consulted for advice as to the cause of the trouble and methods to adopt to improve matters. The poultry instructor will visit and advise, free, on request being made to the Secretary or Agricultural Organiser to the County Committee of Agriculture for the county. See page 539 for names and addresses of Secretaries and Agricultural Organisers. Post-mortem examinations and reports on chicks can also be obtained free by sending one or two dead specimens to the Ministry's Veterinary Research Division, The Farm, Stormont, Belfast. Postage on parcels should be paid.

Fresh Ground.—The importance of providing fresh, clean ground for chickens cannot be over-emphasised. Many of the losses sustained and unsatisfactory results obtained during the rearing stages are due to keeping the chickens on ground which has been used repeatedly for rearing, or on which adult stock has been kept. Land which has been newly laid down to grass is most suitable for young chickens. Rearing the chickens on fresh land will also prevent the appearance of gapes. If this disease appeared in the chickens last season, it will inevitably recur amongst those being reared this season if they are run on the same ground, as the parasite which causes the disease lives in the soil.

Land which cannot be conveniently ploughed and resown to grass should be given a dressing of about 2 tons burnt lime per statute acre every 4 or 5 years. The provisions of the Land Fertility Scheme apply in the case of lime used for poultry runs, when 2 tons or more are obtained. If there is evidence of the birds being infested with worms a dressing of salt at the rate of from 15 to 20 cwt. per acre should be applied and the birds kept off the dressed land until the salt has been well washed into the soil by rain.

THE PURCHASE AND USE OF COD-LIVER OILS.

Cod-liver oil is, as the name implies, the oil which is obtained from the liver of the cod fish. Formerly the oil was extracted by allowing the cod livers to rot so that the oil could be readily squeezed out. Nowadays reputable firms use only fresh livers which are steamed in order to extract the oil. Oils obtained in this way are superior to oils prepared by the old process.

WHY COD-LIVER OIL IS USED.

The value of cod-liver oil to the farmer depends upon the fact that it contains, or should contain, two vitamins known as vitamin A and vitamin D. A deficiency of vitamin A in the ration of a growing animal slows up the rate of growth of the animal, increases susceptibility to certain infections affecting the eyes and throat, and in extreme cases may lead to the occurrence of a form of paralysis. Green food and yellow maize are good sources of vitamin A, and so a deficiency of vitamin A is relatively uncommon in practice.

A deficiency of vitamin D is less unusual, particularly in the winter months. Normally, animals can manufacture vitamin D for themselves if their bodies are exposed to direct sunlight. If they are not exposed to direct sunlight, or only to sunlight which has passed through ordinary window glass, they are dependent upon vitamin D being supplied to them ready made, and cod-liver oil is in practice the most convenient source of this vitamin.

Poultry and pigs, particularly poultry, are subject to vitamin D deficiency. Other domestic animals, with the exception of dogs, rarely suffer from this deficiency. The symptoms include stiffness of gait, softening of the bones,

enlargement of the joints, and twisting of the bones of the limbs, due to the fact that without vitamin D animals cannot build up the lime and phosphate of their food into bone. It is better to take steps to prevent the occurrence of such trouble, than to attempt to cure it once it has developed.

USE OF COD-LIVER OIL FOR POULTRY.

Cod-liver oil should be included in the rations of all birds that are being kept intensively. Two pints per cwt. of mash should be used if scratch grain forms part of the ration. For all-mash rations one pint per cwt. is sufficient. For easy mixing it is best to mix the appropriate quantity of cod-liver oil with a small quantity of bran before the ration is mixed.

COD-LIVER OIL UNDESIRABLE FOR PIGS.

If cod-liver oil is fed to pigs it is not only liable to cause soft bacon fat in the carcase, but the fat will go rancid much more rapidly than normal pig fat. If pigs are given a good ration, and are not entirely shut off from direct sunlight, they will not suffer from a deficiency of vitamin D, and will not require cod-liver oil.

STANDARDS THAT ARE OF LITTLE OR NO VALUE.

Many people when buying cod-liver oil look for one with a light colour, a fishy smell, and freedom from sediment. These qualities are unreliable guides. Colour affords no clue to the vitamin content, although it is true that a very dark colour is usually a sign of deterioration. A fishy smell merely suggests that the oil which gives it is made from fish, not necessarily the cod fish, but a smell resembling that of linseed oil is to be looked on with suspicion, as possible evidence that the oil has been unduly exposed to the air. Many excellent oils yield an abundant sediment in cold weather, just as many poor oils have no sediment.

WARNING AGAINST BUYING WORTHLESS OILS.

All oils with a fishy smell are not necessarily cod-liver oils, neither are all cod-liver oils rich sources of the vitamins A and D. Unfortunately it is necessary to exercise great care when buying cod-liver oil. This was well brought out by the result of a recent survey by the Ministry of Agriculture of the oils that are being offered as cod-liver oils to farmers in Northern Ireland.

Fourteen samples of oil were bought from shops at various places throughout the province. In every case "cod-liver oil" was asked for when the purchase was being made. When they were examined chemically it was found that eleven of the fourteen samples were not cod-liver oil at all but were worthless substitutes. Some were shark oils, some were whale oils, and some even were grossly adulterated with mineral oils. As a source of vitamin D such oils are worthless. Only three were cod-liver oils, and two of the three were oils of very inferior quality.

Thus it is not sufficient to ask simply for "cod-liver oil". It is necessary to demand a tested and guaranteed cod-liver oil. A tested oil is one which has been actually fed to animals under standard test conditions. These conditions are such that it is possible to measure by the effect on the animals what quantity of vitamin A or vitamin D the oil contains. The quantity is expressed in terms of standard units, which are called British Pharmacopoeia or International Units. A guaranteed oil is one which the manufacturers guarantee to have been found by such a test to contain a certain specified quantity of vitamin A or vitamin D. There are many reputable firms selling such tested and guaranteed oils and, as a rule the price is no greater than that of inferior or adulterated oils.

STANDARDS TO BE LOOKED FOR.

A good cod-liver oil should contain not less than 100 British Pharmacopoeia or International units of vitamin D per gramme, and not less than 1,000 British Pharmacopoeia or International units of vitamin A per gramme.

Sometimes these values are expressed in terms of "per ounce" instead of "per gramme", in which case the values equivalent to the standards given above are not less than 2,830 International units of vitamin D per ounce, and not less than 28,300 International units of vitamin A per ounce.

For practical purposes primary consideration should be given to the content of vitamin D, since it is generally to supply vitamin D rather than vitamin A that cod-liver oil is used.

ANNOUNCEMENTS AND REMINDERS.

GENERAL.

Premium Bulls and Boars.—Farmers desiring to keep premium bulls or boars in 1939 should make immediate application to the Secretary or Agricultural Organiser of the County Committee of Agriculture for particulars of the Scheme, as the selections of applicants will be made in the near future by the County Committees of Agriculture.

Seed Supplies.—Farmers are advised to obtain their supplies of seed in good time. Full particulars regarding the most suitable varieties of seed and probable sources from which supplies may be obtained may be had from the Agricultural Instructor for the district whose services may be obtained, free, by application to the Secretary or Agricultural Organiser of the County Committee of Agriculture for the county. See page 539 for names and addresses of Secretaries and Agricultural Organisers.

County Poultry Stations.—Lists of holders of County Poultry Stations have now been issued by the County Committees of Agriculture, and copies can be obtained, free, on application to the Secretary or Agricultural Organiser of the Committee of Agriculture for the county. All the birds at these stations have been carefully selected, and the hens have also passed the test for Bacillary White Diarrhoea. These stations have been established for the purpose of supplying eggs for hatching at a reasonable price to poultry keepers in the county in which the station-holder resides.

Register of Accredited Poultry Farms.—Copies of this Register for the present hatching season can be obtained, free, on application to the Ministry. The Register gives the names and addresses of the owners of farms on which all the birds have passed the test for Bacillary White Diarrhoea, and the birds in the breeding pens have been specially selected for type and breed characteristics. Eggs for hatching from such birds can be obtained from these farms.

Farm Accounts.—Farmers are reminded of the Ministry's scheme for keeping Farm Accounts. Account books are supplied, free, to farmers participating in the scheme, and at the end of each year a statement is prepared by the Ministry showing the profit or loss on the year's working. All information received by the Ministry in connection with the accounts is, of course, treated as strictly confidential, and the scheme is free. Full particulars of this scheme will be supplied on request.

Land Fertility Scheme.—Under this scheme farmers may obtain lime and British basic slag at considerably reduced rates provided that purchases are made from approved suppliers, and that not less than 2 ton lots of each are purchased. Lists giving the names and addresses of approved suppliers can be seen at any creamery or police barracks.

SUPPLY OF FOREST TREES.—Farmers can now obtain supplies of young forest trees from the Ministry's nurseries at the reduced rate of 30/- per 1,000. Particulars of this scheme, and of the varieties of trees available, will be sent, free, on request.

LEAFLETS.—A list of leaflets and other publications issued by the Ministry is given on the last page of this report. Copies of any of these leaflets may be obtained, free, on request.

LECTURES.—The following lectures have been arranged by County Committees of Agriculture:—

LECTURES.

County	Day and Date	Centre	Time	Subject
Armagh	Thurs., 19th Jan.	Bluestone P.E. School.	7-30 p.m.	The Production of Fruit.
,,	Monday, 23rd Jan.	Wastelands P.E. School.	8- 0 p.m.	Lime and Liming.
,,	Tuesday, 24th Jan.	Annaghmore P.E. School.	7-30 p.m.	The Production of Fruit.
,,	Thurs., 26th Jan.	Kilmore P.E. School.	7-30 p.m.	,, ,,
,,	Thurs., 26th Jan.	Cassells P.E. School.	8- 0 p.m.	Lime and Liming.
,,	Tuesday, 31st Jan.	Blundell's Grange P.E. School.	7-30 p.m.	The Production of Fruit.
,,	Thurs., 2nd Feb.	Cortamlet P.E. School.	8- 0 p.m.	Lime and Liming
,,	Friday, 10th Feb.	Balleer P.E. School.	8- 0 p.m.	,, ,,
Fermanagh	Friday, 20th Jan.	Drumbad P.E. School.	7-30 p.m.	The Improvement of Pasture.
,,	Friday, 27th Jan.	Drumbrochas P.E. School.	7-30 p.m.	The Land Fertility Scheme.
,,	Friday, 3rd Feb.	Emmaroo P.E. School.	7-30 p.m.	Livestock—Feeding and Management.
,,	Friday, 10th Feb.	Slee P.E. School.	7-30 p.m.	Application of Manures and Lime to Land.
,,	Friday, 17th Feb.	Wattle Bridge P.E. School.	7-30 p.m.	Results of Experiments.

LECTURES (continued).

County	Day and Date	Centre	Time	Subject
Londonderry	Thurs., 19th Jan.	Lismoyle Old School, Kilrea.	7- 0 p.m.	Profitable Poultry-Keeping illustrated.
,,	Monday, 23rd Jan.	Craigbrock P.E. School, Eglinton.	7- 0 p.m.	,, ,,
,,	Tuesday, 24th Jan.	Ballyhackett P.E. School, Downhill.	7- 0 p.m.	,, ,,
,,	Monday, 23rd Jan.	British Legion Hall, Magherafelt.	7- 0 p.m.	Pig Production.
,,	Thurs., 26th Jan.	Ballyrashane P.E. School, Coleraine.	7- 0 p.m.	Profitable Poultry-Keeping illustrated.
,,	Monday, 30th Jan.	Lisnamorrow P.E. School, Magherafelt.	7- 0 p.m.	,, ,,
,,	Monday, 30th Jan.	Culcrow Old School, Aghadowey.	7- 0 p.m.	Pig Production.
,,	Wed., 1st Feb.	Lisnamuck P.E. School, Maghera.	7- 0 p.m.	Profitable Poultry-Keeping illustrated.
,,	Thurs., 2nd Feb.	Drumard P.E. School, Upperlands.	7- 0 p.m.	,, ,,
Tyrone	Friday, 20th Jan.	Mountain View P.E. School, Mountfield.	7- 0 p.m.	The Land Fertility Scheme.
,,	Friday, 20th Jan.	Eskra Hall, Eskra.	7-30 p.m.	Fruit and Forest Trees.
,,	Friday, 27th Jan.	Galbally New Hall, Pomeroy.	7-30 p.m.	Forest Trees and Shrubs.
,,	Friday, 27th Jan.	Tummery P.E. School, Dromore.	7- 0 p.m.	The Land Fertility Scheme.
,,	Thurs., 2nd Feb.	Ward's Hall, Plumbridge.	8- 0 p.m.	Forest Trees and Shrubs.
,,	Friday, 10th Feb.	Kilskeery P.E. School, Trillick.	7- 0 p.m.	The Land Fertility Scheme.

CLASS IN POULTRY KEEPING.

County	Day & Date of commencement of Class	Centre	Time at which Class is held
Armagh	Monday, 16th Jan.	The Courthouse, Loughgall.	7-0 p.m.

The above Class will be held for several days each week, and will be continued for a period of three weeks.

WIRELESS BROADCASTS.—The following arrangements for broadcasts from the Belfast studios of the British Broadcasting Corporation have been made.

Date	Subject	Time	Speakers
30th Jan.	Talk on Breeding of Farm Horses and care of Brood Mares.	8-55 p.m.	Mr. J. C. Drennan, J.P. Carse Hall, Limavady.
13th Feb.	Discussion on the Production of Beef and Store Cattle.	8-40 p.m.	Messrs. R. D. Chambers, Tullynaskeagh, Downpatrick and F. B. Small, Maralin, Co. Down.
27th Feb.	Talk on the Utilisation of waste land for growing Seed Potatoes	8-10 p.m.	Mr. J. C. Baird, B.Sc., B.Agr., Ministry of Agriculture.

Names and Addresses of Secretaries and Agricultural Organisers of County Committees of Agriculture.

County	Name and Address of Secretary or Organiser.
Antrim	A. B. Clarke, B.A. (Secretary), Courthouse, Crumlin Road, Belfast.
Armagh	S. Jordan, B.Agr. (Organiser), Russell Srteet, Armagh.
Down	J. L. M'Whinney, B.Sc., A.R.C.Sc.I. (Organiser), Northern Bank Chambers, May Street, Belfast.
Fermanagh	W. T. M'Clintock, B.Agr. (Organiser), Courthouse, Enniskillen.
Londonderry	T. K. Caldwell (Secretary), Courthouse, Coleraine.
Tyrone	W. Walsh (Secretary), Courthouse, Omagh.

THE IMPERIAL BUREAU OF DAIRY SCIENCE.

The new Imperial Bureau of Dairy Science has now been established at Shinfield, near Reading, with Professor H. D. Kay, O.B.E., Ph.D., D.Sc., Director of the National Institute for Research in Dairying, as Director, and Mr. W. G. Sutton, M.Sc., A.I.C., from Massey Agricultural College, New Zealand, as Deputy Director. The latter has now taken up his duties at the Bureau.

The Bureau is the outcome of the British Commonwealth Scientific Conference, held in London, in 1936, to consider the working of the organisations controlled by the Executive Council of the Imperial Agricultural Bureaux, and it is financed co-operatively by the Government of the British Empire in the same way as the other Imperial Agricultural Bureaux.

The functions of the Bureau are to index research work in dairy science, whether carried out in the Empire or elsewhere; to collect, abstract and collate information bearing on dairy science and to distribute such information both by publication and by private communication to research workers, officials, and advisory officers throughout the Empire. In addition the Bureau is charged with the duty of establishing and maintaining contact between research workers with common interests, promoting conferences of workers and visits to research centres, and in general encouraging the circulation of information, ideas, material and personnel.

The field of dairy science to be covered by the Bureau was defined by the Conference when recommending its establishment. This field includes the microbiology, chemistry, and physics of milk and its products; animal diseases in so far as they affect milk and its products; the technology of processing milk and manufacturing dairy products; the physiology of milk secretion as affecting quality and quantity of milk and dairy products; standards for the composition and quality of milk and its products.

The routine duties of the Bureau, such as indexing and abstracting, will already be familiar to many dairy workers from the activities of the Bureaux already established in other subjects. An aspect of the work which may not be so well known and understood is the more informal service which can be given to research workers, teachers, and field officers. The Bureau aims to be the friend of these dairy workers. It will deal directly with the individual workers in dairy science, who are invited to write for information which is not obtainable in their own countries. The Bureau may be able to supply the information itself, or to put the enquirer in touch with someone who can do so more effectively.

The new Imperial Bureau of Dairy Science has been established in answer to requests for a clearing house for information in dairy science; its value to dairy science, and to the dairy industry generally will largely depend on the extent to which research workers and others avail themselves of its services.

SCHOLARSHIPS IN HORTICULTURAL SCIENCE.

The Ministry of Agriculture proposes to offer, in the autumn of this year, two Scholarships in Horticultural Science for competition among young men in Northern Ireland between the ages of 17 and 25. Each Scholarship is of the value of £640, and is tenable for four years, the first three of which will be spent at the University of Reading, and the fourth year at a Horticultural Establishment to be selected by the Ministry.

More detailed particulars regarding these Scholarships can be obtained from the Secretary, Ministry of Agriculture, Stormont, Belfast.

SEVENTEENTH
EGG LAYING TEST AT STORMONT.

The third period of four weeks ended on 23rd December, 1938. Many of the pullets which moulted earlier in the test have now recovered, with the result that there was an increase in egg production.

The total number of eggs laid by the competing birds was 10,179, which gives an average of 13.46 eggs per bird, as compared with 11.46 for the previous period. Of the 10,179 eggs laid 8,829 (86.73 per cent.) were scoring eggs, i.e., 2 oz. or over in weight.

The highest sectional average egg production is to the credit of the White Wyandottes in Section 2, viz., 18.0 eggs per bird, the White Wyandottes in Section 1 being next with an average of 16.6 eggs per bird.

The average production during the 12 weeks the test has been in progress, based on the flock of 756 birds, was 35.35 eggs per bird, which compares with a similar average of 35.94 for the corresponding 12 weeks of the previous test.

Eight birds died during the third period. This brings the total number of deaths to 17, and represents a mortality rate of 2.24 per cent. over the whole flock as compared with a rate of 2.8 per cent. for the corresponding 12 weeks of the previous test.

The following are particulars of the leading pens in each Section.

SECTION 1. WHITE WYANDOTTES (Open). 20 Pens.

Position	No. of Pen	Name and address of Owner.	Number of eggs laid.				Test Score
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	16	Mrs. A. Peel, Oakleigh, Roses Lane Ends, Belfast.	68	227	43	—	295
2	1	Mrs. K. Bamforth, Melmount Road, Strabane, Co. Tyrone.	159	133	12	—	292
3	12	Mr. J. Lenaghan, Tyconnett, Ballynahinch, Co. Down.	72	209	22	—	281
4	19	Dr. J. Stuart, Killyflue, Ballymena, Co. Antrim.	39	225	106	1	264
5	11	Mr. J. Lenaghan, Tyconnett, Ballynahinch, Co. Down.	91	166	27	—	257

SECTION 2. WHITE WYANDOTTES (Station-Holders). 10 Pens.

Position	No. of Pen	Name and address of Owner.	Number of eggs laid.				Test Score
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	25	Miss A. Brown, Ballyhill, Crumlin, Co. Antrim.	77	225	40	—	302
2	30	Mrs. M. J. Veitch, Knockninny, Thompson's Bridge, Enniskillen, Co. Fermanagh.	148	137	19	—	285
3	28	Mrs. M. M'Bride, Ackinduff, Cabragh, Dungannon, Co. Tyrone.	49	168	47	2	217

SECTION 3. WHITE LEGHORNS (Open). 10 Pens.

1	39	Mr. J. Telford, Drumarkin, Rathfriland, Co. Down.	101	156	43	1	257
2	41	Mr. J. Waugh, Aldfreck, Ballycarry, Co. Antrim.	67	176	60	—	243
3	34	Mrs. H. M. Fletcher, Ashgrove, Lisadian, Hillsborough, Co. Down.	31	105	36	—	136

SECTION 4. WHITE LEGHORNS (Station-Holders). 11 Pens.

1	44	Miss S. Craig, Ballyboley Junction, Ballynure, Co. Antrim.	60	180	48	1	240
2	50	Miss I. J. Magill, Mulloughdrin, Dromara, Co. Down.	43	184	77	5	227
3	52	Mrs. J. Short, Tullyvally, Seskinore, Omagh, Co. Tyrone.	68	143	112	1	211

SECTION 5. RHODE ISLAND REDS (Open). 29 Pens.

1	66	The Marquis of Hamilton, Baronscourt, Omagh, Co. Tyrone.	121	194	22	—	315
2	73	Mrs. J. M'Neill, Drain's Bay, Larne, Co. Antrim.	158	124	10	—	282
3	74	Mr. R. J. O'Hanlon, Mullahead, Tanderagee, Co. Armagh.	114	100	110	1	214
4	67	Miss J. A. Irwin, Mount Irwin, Tynan, Co. Armagh.	30	178	33	1	208
5	59	Miss A. P. Crockett, Clare House, Castlederg, Co. Tyrone.	55	145	16	—	200

SECTION 6. RHODE ISLAND REDS (Station-Holders). 11 Pens.

Position	No. of Pen	Name and address of Owner.	Number of eggs laid.				Test Score
			Super Grade	1st Grade	2nd Grade	Below 2nd Grade	
1	83	Mrs. H. H. Dickson, Lower Coagh, Co. Tyrone.	99	217	54	—	316
2	89	Miss S. M'Kee, Ardmillan House, Killinchy, Co. Down.	76	201	58	—	277
3	82	Mrs. H. Rea, Lisowen, Listooder, Crossgar, Co. Down.	133	137	23	—	270

SECTION 7. ANY OTHER PURE BREED. 25 Pens.

1	107	Mr. R. Holmes, Killykergan, Coleraine, Co. Derry. (Buff Rock.)	57	198	100	—	255
2	108	Mr. R. Holmes, Killykergan, Coleraine, Co. Derry. (Buff Rock.)	149	101	23	—	250
3	106	Mr. R. Holmes, Killykergan, Coleraine, Co. Derry. (Buff Rock.)	51	174	136	4	225
4	97	Miss M. A. Lawson, Roundhill House, Strabane, Co. Tyrone. (Light Sussex.)	76	110	37	3	186
5	100	Mrs. J. W. Murland, Ardnabannon, Annsborough, Co. Down. (Light Sussex.)	29	148	46	—	177

SECTION 8. CLUB ENTRIES. 10 Pens.

1	120	Ballywalter Young Farmers' Club, Co. Down. (Rhode Island Red.)	109	139	23	—	248
2	128	Brookeborough Poultry Club, Co. Fermanagh. (White Wyandotte.)	65	159	71	2	224
3	124	Dungannon Poultry Club, Co. Tyrone. (White Wyandotte.)	60	163	62	—	223

"Test Score" means the total of the super-grade and first-grade eggs.

The leading pen in the entire test at the end of the third period was Pen No. 83, entered in Section 6—Rhode Island Reds (Station-Holders)—by Mrs. H. H. Dickson, while second place was held by The Marquis of Hamilton's Pen No. 66, of Rhode Island Reds in Section 5, which was only one scoring egg behind Mrs. Dickson's pen. The only other pen to reach the 300 scoring eggs mark is the pen of White Wyandottes entered by Miss A. Brown in the Station-Holders' Section for that breed.

PRICES OF FEEDING STUFFS AT SPECIFIED CENTRES.

The following table shows the retail cash prices per cwt. of Feeding Stuffs at 1st January, 1939, in ten representative centres in Northern Ireland.

	Antrim	Armagh	Ballymena	Belfast	Castlewellan	Coleraine	Dungannon	Enniskillen	Omagh	Strabane
Protein Foods :	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Linseed (whole)	—	16 0	16 0	15 0	—	18 6	—	16 6	—	—
Linseed Cake, home-made ..	—	13 0	12 0	12 0	—	13 0	13 6	12 3	12 0	—
Linseed Cake, foreign	11 6	12 0	11 3	11 0	—	12 6	11 6	11 6	11 0	11 3
Linseed Cake Meal	11 6	13 0	11 3	11 0	11 9	12 0	13 6	12 6	11 6	11 6
Cotton Cake, decorticated ..	9 6	—	9 3	9 6	10 0	9 6	9 6	10 6	10 0	10 3
Earthnut Cake, decorticated ..	9 0	—	9 0	9 6	—	9 3	9 6	9 0	9 0	9 9
Soya Bean Meal (extracted) ..	10 6	10 6	10 0	10 0	—	11 6	10 0	11 6	11 0	—
Fish Meal (60% protein) ..	17 0	17 0	16 6	16 6	—	17 0	17 0	17 6	16 6	16 6
Meat Meal (60% protein) ..	16 6	15 0	14 0	13 6	14 0	—	15 6	—	15 6	16 6
Meat & Bone Meal (40% protein)	—	10 0	—	9 6	—	11 0	9 6	—	—	10 6
Medium Protein Foods :										
Palm Kernel Cake	9 6	—	8 9	7 6	—	—	—	—	—	—
Palm Kernel Meal	9 6	9 6	—	7 6	—	—	—	—	—	—
Starchy Foods :										
Maize (whole)	7 3	—	7 9	7 3	—	7 9	8 0	8 0	—	—
Maize Meal	7 9	8 0	7 9	7 9	8 0	7 9	8 3	8 0	7 11	7 9
Maize, Flaked	8 3	8 6	8 3	8 3	8 3	8 6	8 6	9 0	8 6	8 9
Wheat (whole)	6 6	6 6	6 6	6 0	6 6	6 6	7 6	7 0	6 9	—
Bran, Red	7 3	7 6	7 0	7 6	—	7 6	7 6	8 0	7 9	6 9
Bran, White	8 3	8 6	8 0	8 6	8 9	8 9	9 0	9 3	9 9	8 6
Pollard, Brown	7 0	7 6	7 0	7 6	—	7 9	8 0	8 0	8 0	6 9
Pollard, White	—	8 6	7 6	8 6	8 9	8 6	9 0	8 6	9 3	8 9
Barley Meal	7 9	8 0	7 9	7 6	7 9	8 6	8 0	8 6	8 0	8 0
Tapioca Root Flour	—	—	7 0	7 0	—	—	—	8 6	—	—
Oats (whole)	7 6	6 6	6 6	7 0	5 6	6 6	6 8	7 0	6 0	5 0
Crushed Oats	8 0	7 3	7 0	7 6	6 0	7 0	7 4	8 0	7 0	6 0

NON-CONCENTRATES :—The average prices at representative markets at the beginning of January, 1939, were as follows: Potatoes (Main Crop), 3/9¾d. per cwt.; Upland Hay, 60/7d. per ton; Meadow Hay, 40/10d. per ton; Oat Straw, 41/11d. per ton; Turnips (Swede), 17/1d. per ton.

AVERAGE PRICES OF FEEDING STUFFS

The following table shows the average retail cash prices per cwt. of feeding stuffs at 1st January, 1939, with comparative prices as at the first of the previous month; the costs per unit of protein equivalent and of starch equivalent are also given in respect of each month.

	Protein Equivalent	Starch Equivalent	Average price per cwt. at 1st Jan., 1939	Average price per cwt. at 1st Dec., 1938	Cost per unit of protein equivalent Jan.	Cost per unit of protein equivalent Dec.	Cost per unit of starch equivalent Jan.	Cost per unit of starch equivalent Dec.
Protein Foods			s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Linseed	18.75	119.2	16 5	15 11	17 6	17 0	2 9	2 8
Crushed linseed	18.75	119.2	17 3	17 2	18 5	18 4	2 11	2 11
Linseed cake (home-made)	24.6	74.0	12 7	12 4	10 3	10 0	3 5	3 4
Linseed cake (foreign)	27.05	74.5	11 6	11 5	8 6	8 5	3 1	3 1
Linseed cake meal	24.6	74.0	12 0	11 9	9 9	9 7	3 3	3 2
Decorticated Cotton cake	34.65	68.4	9 9	9 11	5 8	5 9	2 10	2 11
Decorticated Earthnut cake	41.3	73.0	9 3	9 1	4 6	4 5	2 6	2 6
Extracted Soya bean meal	38.3	64.0	10 8	10 9	5 7	5 7	3 4	3 4
Fish meal (60% protein)	53.0	58.9	16 8	16 8	6 3	6 3	5 8	5 8
Meat meal (60% protein)	55.0	61.0	15 1	15 1	5 6	5 6	5 0	5 0
Meat & bone meal (40% protein)	36.0	44.0	10 1	10 2	5 7	5 8	4 7	4 8
Medium Protein								
Palm kernel cake	16.95	73.2	8 7	9 0	10 2	10 7	2 4	2 5
Palm kernel meal	16.55	71.3	8 10	8 7	10 8	10 4	2 6	2 5
Starchy Foods								
Maize	7.65	77.6	7 8	6 8	20 1	17 5	2 0	1 9
Maize meal	7.65	77.6	7 11	7 0	20 8	18 4	2 0	1 10
Flaked maize	9.2	84.0	8 6	7 7	18 6	16 6	2 0	1 10
Wheat	9.6	71.6	6 8	6 9	13 11	14 1	1 10	1 11
Red bran	10.0	42.6	7 5	7 2	14 10	14 4	3 6	3 4
White bran	10.0	42.6	8 9	8 4	17 6	16 8	4 1	3 11
Brown pollard	10.85	56.5	7 6	7 5	13 10	13 8	2 8	2 8
White pollard	10.85	56.5	8 7	8 4	15 10	15 4	3 0	2 11
Barley meal	7.3	71.4	8 0	7 7	21 11	20 9	2 3	2 1
Oats	7.6	59.5	6 5	6 4	16 11	16 8	2 2	2 2
Crushed oats	7.6	59.5	7 1	6 11	18 8	18 2	2 5	2 4
Tapioca root flour	1.2	83.5	7 6	7 7	125 0	125 11	1 10	1 10
Non-Concentrates								
Potatoes	0.85	18.5	3 9¾	2 8¼	89 8½	63 3	4 1½	2 11
Turnips (Swede)	0.7	7.3	0 10½	0 10½	24 5	25 0	2 4	2 4¾
Upland hay	4.9	29.0	3 0¼	3 0¾	12 4	12 6	2 1	2 1¼
Meadow hay	4.7	37.0	2 0½	2 0½	8 8	8 8	1 1¼	1 1¼
Oat Straw	0.5	21.0	2 1¼	2 0	84 2	80 0	2 0	1 11

The object of the foregoing tables, besides providing information regarding the prices of feeding stuffs and the trend of prices, is to give purchasers a

guide as to the economic purchase of supplies. It should be understood that the price per ton is not a sound basis on which to judge whether or not a particular food or grade of a particular food is good value for money. The composition of the foods is the only basis on which different grades can be compared. The value of foods of different kinds, but of the same nature in reference to market prices, can also be compared on this basis.

In the case of an artificial manure which supplies only one fertilising ingredient as, for example, sulphate of ammonia, which supplies nitrogen, the cost of the unit of nitrogen at the price charged can be determined quite readily by dividing the price per ton by the percentage of nitrogen in the sample, and the figure thus obtained is the cost of a unit of nitrogen. By this method the most economical source of nitrogen can be ascertained. Similarly, in the cases of phosphatic and potassic manures.

With feeding stuffs, however, the same method cannot be applied to determine comparative values. This is because every feeding stuff contains three important food constituents in varying proportions. These are (1) carbohydrates, (2) oils or fats, and (3) proteins or albuminoids. The carbohydrates comprise a group of substances such as starch, sugar and cellulose. These substances supply heat or energy to the animal, and the surplus goes to form fat. They are the fuel which the animal requires to keep the body "fires" burning. The oils of a feeding stuff are also heat and energy suppliers, and the surplus is stored as fat. The oils are approximately 2½ times more valuable than the carbohydrates as heat and energy producers, but excess in a ration may lower its digestibility and cause digestive troubles. The proteins are the most valuable and most expensive food constituent. They contain nitrogen and are the part of the food from which products which contain protein are chiefly made. Thus the protein products, such as lean meat, milk and eggs, are formed principally from protein, and young, growing animals, dairy cows and laying hens must have an adequate quantity of protein for full growth, development and production.

While all animals require a certain amount of carbohydrates, oils and proteins, the relative amounts depend on the class of stock. For example, a two-year-old fattening bullock requires much less protein than a dairy cow in milk and a fattening chicken less than a laying pullet.

There are wide differences in the composition of the different kinds of feeding stuffs. Some are rich in carbohydrates and, therefore, particularly valuable for fattening purposes. These include oats, maize, barley and wheat, and their products. Others are rich in protein and are valuable for producing flesh, milk and eggs. These include decorticated cotton cake, decorticated earthnut cake, meat meal and soya bean meal.

In the following table the composition of some of the commonly used feeding stuffs is shown—

	Water.	Protein.	Oil.	Carbohydrates.
Non concentrates				
Swede turnips ...	88	1	0.2	9
Potatoes	75	2	0.1	21
Cabbage	89	1.5	0.5	8
Oat Straw	14	4	2	37
Meadow hay ...	10	10	3	45
Pasture grass ...	80	3.5	0.8	10
Fattening Foods				
Crushed oats ...	13	9	6	60
Maize meal ...	12	10	4	70
Barley meal ...	13	12	2	66
Pollard ...	13	15	5	57
Flesh forming foods				
Decorticated Cotton cake	9	40	9	26
Decorticated Earthnut cake	10	46	7	23
Meat meal ...	11	60	6	—
Soya bean meal ...	11	44	1.5	32

The problem confronting the purchaser of feeding stuffs, who is concerned with the business of getting best value for money, is one which is much more difficult to solve than is the case with artificial fertilisers. There are at least four aspects of the problem to be considered:

(1) The quality of the different foods offered for sale. This can be determined by reference to the particulars of composition which a seller must give a purchaser in accordance with the Fertilisers and Feeding Stuffs Act.

(2) The physical condition of the foods, and if fresh or stale.

(3) The suitability of the foods for the purpose in view.

(4) The comparative values of the foods at the prices quoted.

The chief concern of this section of the Report is comparative values and, therefore, that aspect of the problem will be considered specifically.

The proteins play a part in the nutrition of the animal which cannot be taken by either carbohydrates or oils. In addition to this, the proteins, carbohydrates and oils have very different values for the production of energy or fat. It therefore follows that the simple procedure of totalling the percentages of these three ingredients and dividing this total into the price per ton in order to obtain a value for a unit of the food-stuff is quite unsound. Various methods have been used to compare the values of different feeding stuffs, but none is completely satisfactory. For practical purposes the least cumbersome is the

method whereby the food-stuffs are placed in groups of similar composition, and the values of the members of each group are then compared by consideration of (a) their protein equivalents, and (b) their starch equivalents. The starch equivalent is the number of pounds of starch which would be required to produce the same amount of "fat" in an animal as 100 pounds of the food-stuff in question. It is essentially a measure of the fat-producing value of the food-stuff. The protein equivalent is the number of pounds of digestible true protein, plus half the number of pounds of non-protein nitrogenous substances such as amides, present in 100 pounds of the foodstuff. It is a measure of the value of the food-stuff to the animal as a source of protein.

By this method all foods can be reduced to comparable standards based on (1) the protein equivalent, and (2) the starch equivalent.

The next stage in comparing values is to determine the cost of a unit of protein equivalent and of starch equivalent in the different foods which are being compared, and to enable the reader to do this the protein and starch equivalent figures for the different foods are given in the table on page 546, and also the cost per unit of protein equivalent and of starch equivalent in each case. These costs have been determined by dividing the protein equivalent figure and the starch equivalent figure, respectively, into the current price per ton, and the lower the quotient figures thus obtained the cheaper is the particular food as a source of protein or of starch equivalent as the case may be.

However, it would be quite misleading to compare the cost of a unit of protein equivalent in a protein food (which is purchased principally for its protein) with the cost of a similar unit in a starchy food. In other words, foods such as maize meal and pollard cannot be compared on the basis of cost of protein equivalent with foods such as decorticated cotton cake and meat meal.

The best course to adopt is to consider for what purpose the particular food is required, decide what foods are suitable for that purpose, examine the samples of these different foods which are offered and, if all appear to be satisfactory, apply the unit value system of determining which one provides protein equivalent or starch equivalent at the cheapest rate. A few examples may be helpful in explaining the procedure.

(1) Suppose it is intended to purchase a protein food for the purpose of balancing a ration for dairy cows. The protein foods suitable for dairy cows are decorticated cotton cake, decorticated earthnut cake and soya bean meal. From the table on page 546 it is seen that at the current average prices of these foods the cost of the unit of protein equivalent in each is as follows:—

Decorticated cotton cake	...	...	5/8d.
Decorticated earthnut cake	...	...	4/6d.
Soya bean meal	...	...	5/7d.

Accordingly decorticated earthnut cake is the cheapest source of protein.

(2) A protein food is required as a milk substitute to balance the ration for fattening pigs. The foods suitable for this purpose are soya bean meal, meat meal and meat and bone meal. Referring again to the table, it is seen that at the current average prices of these foods the cost of the unit of protein equivalent in each is as follows:—

Soya bean meal	...	...	5/7d.
Meat meal (60% protein)	...	...	5/6d.
Meat and bone meal (40% protein)	...		5/7d.

Therefore meat meal (60% protein) is the cheapest milk substitute for pigs at the present prices of purchased foods suitable for pigs. This example shows also how the price per ton may mislead a purchaser into thinking he is being economical when he buys at the cheapest price. The 60% meat meal costs 4/11d. per cwt. more than the 40% meat and bone meal, and yet it is a cheaper source of protein than the latter. Besides, a lesser proportion in the meal mixture will suffice, and having usually a lower content of oil than the 40% grade, it is likely to prove more satisfactory than that grade both from the thriving point of view and its effect on the quality of the bacon.

(3) Whether is it more economical to feed white pollard than brown pollard or white bran than red bran, even though the prices per ton of the white grades are higher than those of the brown or red grades? The figures in the table show that the cost of both the unit of protein equivalent and of starch equivalent is less for the brown pollard than the white, and less for the red than the white bran. It follows, therefore, that at current prices the coloured grades of pollard and bran are cheaper than the white grades. It should be remembered in this connection, however, that the comparison of costs in these cases has been made on the assumption that the composition of the coloured grades is the same as that of the white grades. A pollard containing say, 8 per cent. fibre, even if of a white colour, would have a far lower feeding value than one containing only 4 per cent. of fibre. Colour is not a guide as to the feeding value of pollard or bran.

PRICES OF FERTILISERS AT SPECIFIED CENTRES.

The following table shows the retail cash prices per ton of fertilisers at 1st January, 1939, at representative centres in Northern Ireland.

	Antrim	Armagh	Ballymena	Belfast	Castlewellan	Coleraine	Dungannon	Enniskillen	Omagh	Strabane
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Nitrogenous Manures :										
Nitrate of Soda (15.5% N.) ..	8 5 0	—	—	8 0 0	—	—	8 15 0	—	—	—
Sulphate of Ammonia (20.6% N.)	8 0 0	—	—	7 10 0	8 0 0	—	8 0 0	8 10 0	8 5 0	8 10 0
Nitro Chalk (15.5% N.) ..	8 5 0	—	—	7 10 0	—	—	8 10 0	9 0 0	8 12 6	8 12 6
Phosphatic Manures :										
Superphosphate (16% S.P.A.) ..	—	—	—	3 13 9	3 17 6	3 15 0	4 2 6	3 17 6	4 2 6	4 10 0
Semsol (5% S.P.A., 15½% P.A.)	3 10 0	3 10 0	3 5 0	2 17 6	3 5 0	3 5 0	3 15 0	3 10 0	3 11 3	3 10 0
*Basic Slag (16% to 17% P.A.) ..	—	—	—	2 18 0	—	—	—	—	—	—
*Basic Slag (18% to 20% P.A.) ..	—	—	—	3 6 0	—	—	—	—	—	—
Gafsa Rock Phosphate (26% P.A.)	3 5 0	3 2 6	3 0 0	2 12 6	2 15 0	3 0 0	3 5 0	3 5 0	3 6 3	3 5 0
Potash Manures :										
Kainit (14% P.)	3 12 6	—	—	3 0 0	—	—	3 15 0	3 12 0	3 12 6	3 10 0
Potash Salts (20% P.)	4 10 0	—	—	3 17 6	—	4 5 0	4 10 0	4 10 0	4 10 0	4 10 0
Potash Salts (30% P.)	5 15 0	—	—	5 5 0	—	—	5 15 0	5 15 0	5 15 0	5 17 6
Muriate of Potash (50% P.) ..	8 17 6	—	—	8 10 0	9 0 0	—	9 0 0	9 0 0	9 0 0	9 0 0
Agricultural Salt	2 10 0	2 0 0	—	3 10 0	—	—	3 0 0	2 0 0	—	3 0 0

Abbreviations : N.—Nitrogen. S.P.A.—Soluble Phosphoric Acid. P.A.—Phosphoric Acid. P.—Potash.

* If obtained under the Land Fertility Scheme, the price of British made basic slag will be 25 per cent. less than the figures quoted, since a subsidy equivalent to one-quarter is payable. The prices for British basic slag, c.i.f. Belfast and Londonderry are fixed by the Land Fertility Committee and are the same at both these ports. The retail prices at Belfast given above are based on these c.i.f. prices plus the charges approved by the Committee for unloading and distribution. The price at any other centre will be the price at Belfast or Londonderry plus the carriage from the port to the particular centre.

The cost of the unit of fertilising ingredient is determined by dividing the price per ton by the percentage of the ingredient contained in the manure, and this method of determining values is the only sound basis on which two different manures or two grades of the same manure, supplying the same fertilising ingredient, can be compared. The price per ton is not a reliable guide as to which is the better value for money. For example, at the prices ruling at Belfast for the various manures, as shown on the table on page 551 the costs of the units of the fertilising ingredients are as follow :—

Nitrate of Soda (15.5% N.)	10/3¾	(Nitrogen)
Sulphate of Ammonia (20.6% N.)	7/3½	,,
Nitro Chalk (15.5% N.)	9/8¼	,,
Superphosphate (16% S.P.A.)	4/7¼	(Phosphoric Acid)
Semsol (5% S.P.A., 15½% P.A.)	2/9¾	,,
Basic Slag (16% P.A.)	3/7½	,,
Basic Slag (19% P.A.)	3/5¾	,,
Gafsa Rock Phosphate (26% P.A.)	2/0¼	,,
Kainit (14% P.)	4/3½	(Potash)
Potash Salts (20% P.)	3/10½	,,
Potash Salts (30% P.)	3/6	,,
Muriate of Potash (50% P.) ..	3/4¾	,,

It is seen that the price of 14% Kainit is £3 0s. 0d. per ton, and of 30% Potash Salts is £5 5s. 0d. per ton, and it might be concluded that the Kainit was the better value for money. This is not so. The 30% Potash Salts contains more than twice as much Potash as the Kainit, and is, therefore, a cheaper source of potash when the price is even double that at which Kainit is offered. The cost of a unit of potash in the 30% Potash Salts is seen to be only 3/6d., whereas the cost of a unit of potash in Kainit is 4/3½d. At the prices ruling for these manures, 30% Potash Salts is, therefore, better value for money than Kainit. Similarly, it is seen that at the prices prevailing at Belfast Gafsa Rock Phosphate is the cheapest source of phosphoric acid and Sulphate of Ammonia is the cheapest source of Nitrogen.

In connection with the costs of the units of phosphoric acid, as shown in the table on the previous page, it should be noted that in the case of Superphosphate, the cost is that of a unit of soluble phosphoric acid: whereas in the cases of Basic Slag, Semsol, and Gafsa Rock Phosphate, the figures represent the cost of a unit of insoluble phosphoric acid. It would not, therefore, be correct to compare the unit price of the phosphoric acid in Superphosphate with those of the phosphoric acid in the other three. It should also be noted that the costs of the units of phosphoric acid in basic slag will be less than the figures shown above, if that manure is purchased under the terms of the Land Fertility Scheme.

TRADE AND PRICES OF LIVE STOCK AT BELFAST AUCTION MARTS.

Excepting the sales at the beginning of the month, when rather heavier supplies had the effect of reducing prices, values of beef cattle at the Belfast auction marts in December were again higher than in the previous month. Supplies on the whole, however, were much lighter than in November, owing to the incidence of the holiday period. The special Christmas sales saw many lots of exceptional quality on offer, resulting in a higher average on the month. The December figure of 34/- per live cwt. compares with the November average of 32/11d. per live cwt. Ordinary commercial cattle, however, were little changed in value throughout the month, and as a general rule price ranges were :—

Top quality	.. ..	35/- to 38/6 per live cwt.
Good commercial	.. ..	32/6 ,, 36/- ,, ,, ,,
Rough and unfinished cattle	..	31/6 ,, 34/- ,, ,, ,,

Prize cattle were estimated to range in price from 40/- to 50/- per live cwt.

The following table shows the average prices of fat cattle during the past five weeks compared with the corresponding dates a year ago :—

Week ended	*per cwt.*	*Week ended*	*per cwt.*
	s. d.		s. d.
10th December, 1938 ..	32 11	11th December, 1937 ..	39 0
17th ,, ,, ..	34 6	18th ,, ,, ..	43 3
24th ,, ,, ..	34 0	25th ,, ,, ..	42 3
31st ,, ,, ..	35 6	1st January, 1938 ..	42 0
Average for month ..	34 0	Average for month ..	41 6
7th January, 1939 ..	35 8	8th January, 1938 ..	41 11

Supplies of store cattle were also very light last month, because of the holidays, and in fact during the holiday week there were no store cattle sales. A fairly good enquiry was experienced at the beginning of the month, but later the very heavy frost brought about a marked reduction in the volume of trade. Prices, however, were not materially affected, and indeed the general average for the month was higher than for November. Large forward stores throughout the month made from £12 10s. 0d. to £16 15s. 0d. for the best, and from £9 7s. 6d. to £12 15s. 0d. for second quality. Good medium cattle made from £11 to £13 5s. 0d., and the best of the calves were quoted at from £8 10s. 0d. to £11 5s. 0d. per head.

Supplies of dairy cattle were also affected by the holidays, but not to a very great extent. The demand continued good all month, and prices were firm to dearer up to the last sale-day of the month, when a marked deterioration in trade was felt and prices fell sharply. Previous to this the general run of prices at the sales were :—Top grade dairy cattle ranged in price from £25 to £32 10s. 0d., fresh useful cows from £18 to £25, and rougher animals from £11 to £18 per head.

Fat sheep and lambs were considerably reduced in number, but were adequate for requirements. Trade was quietly steady all month, and a number of quality stock found a ready sale for more money. Prices on the whole were about 3/- firmer than in November.

PRICES OF OTHER STOCK AT THE BELFAST AUCTION MARTS.

Description.		Week ended 10–12–38	Week ended 17–12–38	Week ended 24–12–38	Week ended 31–12–38
Fat Cows	Range of 1st quality	£12 to £17	*£14 to £32	£13 to £16-15	£12 to £16
	,, 2nd ,,	£9 to £13	£11 to £18	£9 to £13-10	£8 to £13-10
Store Cattle :					
Forward Stores	Range of 1st quality	£12-10 to £14-5	£12 to £13-7-6	£12-10 to £14-10	—
	,, 2nd ,,	£9-7-6 to £12	£10 to £11-15	£11 to £14-5	—
Calves (under 12 months) ..	,, 1st ,,	£9-15 to £11	£8-10 to £9-15	£9-5 to £10-10	—
	,, 2nd ,,	£6 to £9	£6-5 to £8	£6-10 to £8-10	—
Dairy Cattle :					
Milch Cows	Range of 1st quality	£23 to £32-10	£22 to £32-10	£22 to £28	£21 to £26-10
	,, 2nd ,,	£18 to £22	£17 to £21	£17 to £21	£17 to £20
Springers	,, 1st ,,	£22 to £30-5	£20 to £24	£21 to £25-10	—
	,, 2nd ,,	£18 to £21-10	£16 to £19	£17 to £20	—
Sheep and Lambs :					
Crossbred and White Ewes ..	Range of 1st quality	26/– to 47/6	*26/– to £8-5	28/– to 34/–	28/– to 40/–
	,, 2nd ,,	21/– to 39/–	20/– to 45/–	21/– to 29/–	24/– to 31/–
Blackface Ewes	,, 1st ,,	23/– to 29/–	*22/– to 70/–	22/– to 29/–	22/– to 32/–
	,, 2nd ,,	18/– to 23/–	17/– to 29/–	16/– to 23/–	17/– to 23/–
Crossbred and White Lambs ..	,, 1st ,,	32/– to 43/6	*33/- to £4-17-6	34/– to 44/–	38/– to 51/–
	,, 2nd ,,	25/– to 33/–	27/– to 39/–	26/– to 34/–	30/– to 39/–
Blackface Lambs	,, 1st ,,	17/– to 25/–	*22/– to 48/–	20/– to 28/–	17/– to 23/–
	,, 2nd ,,	12/– to 18/–	18/– to 29/–	14/– to 20/–	12/– to 18/–
Blackface Hoggets	,, 1st ,,	22/– to 28/–	20/– to 27/6	—	—
	,, 2nd ,,	18/– to 21/–	16/– to 24/–	—	—
Rams	,, 1st ,,	28/6 to 43/–	30/– to 45/–	30/– to 40/–	33/– to 42/–
	,, 2nd ,,	25/– to 35/–	22/– to 33/–	24/– to 32/–	25/– to 29/–

*Prices quoted include those obtained for prize animals at the Christmas shows and sales and should not be regarded as comparative.

PRICES OF LIVE STOCK.

Average prices of Live Stock at Fairs during the month of December, 1938.

Date	Fair	Calves (under 9 months)	Store Cattle	Fat Cattle (18 months and over)	Springers		Milch Cows	Fat Lambs (under 12 months old)	Fat Sheep (over 2 years old)	Young Pigs
					Cows	Heifers				
		Per head £ s.	Per cwt. Live weight	Per cwt. Live wgt.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £ s.
1	Ballymoney ..	6 10	35/ to 38/6	—	18 10	16 10	15 17/6	—	*1 8/9	1 9
1	Strabane	6 10	35/- to 39/-	32/6	13 0	—	—	—	—	—
2	Moy	—	34/- to 39/6	33/-	16 15	16 17/6	15 12/6	—	*1 10	—
6	Omagh	6 10	36/6 to 40/-	32/6	18 0	16 0	16 0	*1 7/6 † 17/3	—	—
7	Londonderry ..	—	30/- to 36/6	31/6	18 0	—	—	—	—	1 7/6
7	Rathfriland ..	6 7/9	32/- to 38/-	32/-	20 10	19 0	18 15	*1 7/6	†0 18	1 11/6
8	Irvinestown ..	7 2/6	34/6 to 38/-	30/-	16 0	15 10	—	—	—	1 9
9	Ballygawley ..	—	27/6 to 38/6	31/6	18 0	—	15 15	*1 12/6	—	1 15
10	Enniskillen ..	5 17/6	32/6 to 36/-	32/-	17 0	14 0	15 0	—	—	1 10
14	Crossgar	—	35/- to 37/-	—	20 0	—	—	*1 7/6	—	1 18
14	Kilrea	6 0	30/- to 36/-	32/6	21 0	17 0	18 0	—	—	1 7/6
15	Ballynahinch ..	—	35/- to 38/-	—	20 0	—	—	—	—	2 0
17	Portadown	5 17/6	34/- to 38/-	34/-	20 0	17 0	18 0	—	—	1 12/6
19	Camlough	6 0	36/- to 42/-	32/6	18 5	17 5	14 5	—	—	—
21	Lisnaskea	5 0	30/- to 36/-	32/-	16 0	16 0	14 10	—	—	1 10
21	Moneymore ..	6 12/6	34/- to 40/-	32/-	17 10	16 0	—	*1 7/6	*1 10	1 11
22	Fintona	7 0	35/- to 37/6	33/-	17 0	16 0	16 0	*1 10	*1 12/6	1 11
29	Antrim	—	32/6 to 37/6	33/-	—	—	—	—	—	1 10
30	Killylea	—	30/- to 38/6	34/6	15 0	—	13 0	—	*0 17/6	—
30	Castlederg	5 0	35/- to 36/-	33/6	12 10	—	13 5	*1 7/6	*1 10	1 7/6
31	Ballymena	6 5/6	27/- to 42/-	—	23 0	20 0	20 0	—	—	1 16

*Downs and Crossbred. †Mountain.

SHIPMENTS OF LIVE STOCK.

Statement showing the Shipments of Live Stock from Northern Ireland ports during the following periods:—Months of December, 1938, November, 1938, December, 1937; Twelve months ended 31st December, 1938, and 31st December, 1937.

PORTS OF :—	CATTLE.						SHEEP.				PIGS.			Horses
	Fat	Stores	Milch Cows	Springers	Calves	Total	Fat	Stores	Lambs	Total	Fat	Stores	Total	
Belfast	4,430	3,175	794	27	—	8,426	6,226	—	—	6,226	6,932	—	6,932	61
Larne	5	588	—	—	—	593	769	—	—	769	4,022	—	4,022	9
Londonderry ..	154	3,094	37	40	114	3,439	2,039	—	—	2,039	308	—	308	1
Newry	—	—	—	—	—	—	64	—	—	64	—	—	—	—
Month ended 31st December, 1938	4,589	6,857	831	67	114	12,458	9,098	—	—	9,098	11,262	—	11,262	71
Month ended 30th November, 1938	6,824	16,888	1,571	184	141	25,608	15,503	—	—	15,503	19,415	120	19,535	123
Month ended 31st December, 1937	4,469	5,631	823	34	—	10,966	6,710	—	—	6,710	14,962	176	15,138	86
Twelve months ended 31st December, 1938	57,696	160,634	16,844	2,248	3,291	240,713	85,038	118	78,514	163,670	101,416	1,907	103,323	2,471
Twelve months ended 31st December, 1937	57,875	181,125	17,859	2,154	4,069	263,082	57,747	392	78,398	136,537	136,198	2,978	139,176	3,062

IMPORTS AND EXPORTS.

Table showing the Imports and Exports through Northern Ireland ports of certain Agricultural Products during the month ended 30th November, 1938, and the eleven months ended 30th November, 1938, with comparative figures for the corresponding periods in 1937. This information also includes trade with Eire across the land boundary.

(These figures are supplied through the courtesy of the Ministry of Commerce and are subject to revision).

Commodity	IMPORTS.				EXPORTS.			
	Month ended 30th November.		Eleven Months ended 30th November.		Month ended 30th November.		Eleven Months ended 30th November.	
	‡1938	1937	‡1938	1937	‡1938	1937	‡1938	1937
Bacon .. .. cwt.	1,223	4,794	43,551	37,858	40,164	42,478	374,978	356,443
Hams .. .. ,,	225	1,361	14,529	16,740	12,722	9,623	133,409	112,546
Pork .. .. ,,	7	294	1,025	4,678	3,403	4,238	29,970	31,781
Butter .. .. ,,	9,417	9,115	174,684	188,497	224	720	3,571	4,115
Eggs .. .. gt. hds.	3,560	13,784	891,810	812,833	121,678	180,534	3,297,600	3,277,988
Oat Products (inc. oatmeal) cwt.	1,489	1,647	23,274	22,799	6,786	9,928	53,957	76,083
Potatoes .. .. tons	4	382	2,644	6,517	*12,039	*17,938	*156,692	*164,504
Poultry .. .. cwt.	7	286	2,098	2,844	14,077	17,348	161,233	174,296
Grass Seeds .. .. ,,	3,356	1,437	21,604	9,019	12,586	24,612	283,972	274,270
Cream .. .. galls.	—	—	—	—	†30,205	†21,905	†272,012	†536,641

* These figures represent the quantities of potatoes inspected by the Ministry of Agriculture for shipment.

† These figures compiled from the Monthly Trading Returns supplied by Creameries in Northern Ireland.

‡ These figures do not include trade with places abroad.

ACCOUNT OF TRADE AT FAIRS.

Trade in store cattle last month was rather variable, but the general undertone up to the last few days of the month was firm and prices were fully held. Good forward stock, especially large animals and good black pollies, were dearer than in November. The severity of the weather later in the month, with frosts and snow around about the holiday period, had an adverse effect both on the supply of quality cattle and on the attendance of buyers, and trade as a result declined in volume. Prices, however, were little altered, and good quality stock continued in demand.

The quality and condition of fat cattle at fairs last month were well up to standard, and trade was good. Supplies were up to average dimensions, and despite adverse weather conditions, a fairly brisk business was done, and prices firmed by from 2/- to 4/- per live cwt. Well-finished medium weights again attracted most attention.

Dairy cattle were in poor supply, and generally lacking in quality. The demand continued dull except for the best, and prices were lower than a month ago. Good quality cows with well-shaped udders were readily sold, but other sorts were hard to cash.

Only small supplies of fat sheep and lambs were on offer last month. A fairly brisk business was done at a number of centres where good clearances were effected at about late rates. Good fat lambs for butchering, especially, were quickly bought up locally at firm rates.

The demand for the average supplies of young pigs remained steady, although prices registered a further slight decline on the month. Small offerings of brood sows were a fair trade at similar rates to those ruling in November. Good type Yorks and York crosses were again most in demand at from £6 to £8 10s 0d. per head. Prices at all centres ranged from £5 to £11 according to quality.

Table showing the numbers of Live Stock (1) exposed for sale, and (2) sold at 21 fairs in Northern Ireland during the months of November and December, 1938, and December, 1937.

Description of Live Stock.	December, 1938.		November, 1938.		December, 1937.	
	Number exposed for sale.	Number sold.	Number exposed for sale.	Number sold.	Number exposed for sale.	Number sold.
Store Cattle ..	6,177	4,502	8,880	5,897	4,982	3,943
Fat Cattle ..	1,432	1,326	1,461	1,271	1,187	1,067
Dairy Cattle	1,173	893	1,550	1,109	783	700
Sheep	117	84	404	271	109	89
Lambs	332	221	612	413	480	358
Young Pigs ..	3,339	2,723	3,463	2,753	2,467	1,943

12th January, 1939.

This report is issued free on application to the Secretary, Ministry of Agriculture, Stormont, Belfast.

MINISTRY OF AGRICULTURE.

List of Leaflets and other Publications

CATTLE.

Leaflet
No. 54 The Breeding and Rearing of Calves.
„ 5 The Dishorning of Calves.
Circular
No. 5 Why Pay a Tax on the Horns of Cattle?
Leaflet
No. 19 How to Feed Linseed.
„ 81 The Construction of Cow Houses.
„ 61 The Care and Management of Bulls.
„ 70 Ringworm.
„ 80 Hoose or Husk in Farm Stock.
„ 13 Contagious Abortion in Cattle.
„ 41 Blackleg, Blackquarter or Quarterill.
„ 64 The Destruction of Warble Fly Maggots in Cattle.
„ 82 White Scour in Calves.
Circular
No. 13 The Ox-Warble Fly.
Guide to the Live Stock Breeding Act (Northern Ireland), 1922.

DAIRYING.

Leaflet
No. 16 The Feeding of Dairy Cows.
„ 42 The Purchase of Balanced Rations for Dairy Cows.
„ 36 Advantages of Milk Recording.
„ 39 The Production of Clean Milk.
„ 78 Graded Milk.
„ 77 Licensing of Milk Producers and Distributors.
„ 51 Butter-making on the Farm.
„ 14 Cheese-making on the Farm.

POULTRY AND EGGS.

Leaflet
No. 20 The Hatching and Rearing of Chickens.
„ 2 Improvement of Farm Poultry.
„ 3 Feeding for Egg Production.
„ 21 The Uses and Advantages of Portable Poultry Houses.
„ 28 The Construction of a Laying House for Poultry.
„ 29 The Selection and Breeding of Laying Hens.
„ 83 The Care, Management and Feeding of Poultry Breeding Stock.
„ 46 Hints for Winter Egg Production.
„ 57 How to have Eggs of First Quality.
„ 56 Identification of Egg Supplies.
„ 27 How to Keep Eggs Clean.
Talk to Producers
No. 39 Hints on the care and handling of Eggs for Market.
Leaflet
No. 59 Bacillary White Diarrhoea. (Pullorum Disease.)
„ 52 Gapes in Chickens.
„ 43 Tuberculosis in Poultry.
„ 32 Roup of Poultry (Fowl Pox).
„ 31 Coccidiosis in Poultry.
„ 18 Marketing of Dead Poultry.
„ 37 The Raising and Fattening of Turkeys.
Report on Stormont Egg Laying Test.
List of Accredited Poultry Farms in Northern Ireland.

PIGS.

Leaflet
No. 45 The Breeding and Rearing of Pigs.
„ 35 The Fattening of Pigs.
„ 69 The Construction of Piggeries.
„ 75 Pig Production and the Pigs Marketing Scheme.
Talk to Producers
No. 41 Feeding of Pigs in Relation to Bacon Quality.

SHEEP.

No. 47 The Care and Management of Sheep.
„ 63 Sheep—Castration, Docking, Foot-Rot and Care of Feet.
„ 23 The Handling and Care of Wool.
„ 24 Fluke in Sheep.

HORSES.

Leaflet
No. 25 The Rearing and Management of Young Horses.
Register of Premium Stallions.

CROPS, including Vegetables.

Lists of Growers of Certified Crops of Potatoes.
Leaflet
No. 44 Results of Crop Experiments.
„ 7 Potato Trials.
„ 73 The Propagation and Maintenance of Healthy Stocks of Potatoes.
„ 50 Potato Blight.
„ 74 New Pure Strains of Flax.
„ 1 Flax Seed.
„ 67 The Cultivation of Vegetables.
„ 22 Leather-jacket Grubs.
Circular
No. 9 Smut in Oats.
Leaflet
No. 40 The Laying down and management of temporary pastures.

FRUIT.

Leaflet
No. 15 Suitable Varieties of Fruit.
„ 34 The Pruning of Apple Trees.
„ 9 The Renovation of Orchards.
„ 33 Spraying Calendar for Apple Orchards.
„ 10 Fruit Tree Pests—Capsid Bugs.
„ 11 Fruit Tree Pests—Aphides and Apple Sucker.
„ 12 Fruit Tree Pests—Caterpillars.
„ 79 The Picking and Storing of Apples.
„ 6 The Packing of Apples in Standard Boxes.
„ 65 The Packing of Apples in Barrels.
„ 17 Home Bottling of Fruits and Vegetables.
Guide to the Marketing of Fruit Act.
Leaflet
No. 49 American Gooseberry Mildew.
„ 68 The Cultivation of Strawberries.
„ 71 The Cultivation of Raspberries.

FORESTRY.

Leaflet
No. 62 The Production of Timber on the Farm.
„ 72 Tree Planting for Shelter and Ornament.
„ 85 The Growing of Trees.

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Leaflet
No. 38 The Destruction of Charlock.
„ 55 Destruction of Ragwort or Benweed.

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No. 60 Advantages of Winter Agricultural Classes.
„ 58 How the Fertilisers and Feeding Stuffs Act benefits the Farmer.
Circular
No. 11 Fertilisers and Feeding Stuffs Act—General Summary.
„ 306 Fertilisers and Feeding Stuffs Act, 1926—Revision of Regulations.
„ 10 Purchase of Fertilisers and Feeding Stuffs.
„ 8 Basic Slag.
Leaflet
No. 84 Lime and Liming.
„ 66 Seed Testing Facilities for Traders.
„ 76 Acarine (Isle of Wight) Disease of Bees.
„ 26 Ordnance Survey Maps for Farmers.

Any of the above publications may be obtained free of charge and post free on application to the Secretary, Ministry of Agriculture, Stormont, Belfast.

The following publications can be obtained from His Majesty's Stationery Office, 80 Chichester Street Belfast, at the prices stated :—

(1) The Annual Report of the Ministry of Agriculture for Northern Ireland. Price, 2/6 net.
(2) Annual Report upon the Agricultural Statistics of Northern Ireland. Price, 2/- net.
(3) The Journal of the Ministry of Agriculture for Northern Ireland. Price, 2/6 net.
(4) The Agricultural Output of Northern Ireland, 1925. Price, 2/6 net.

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